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SUPPURATIONS OF THE PETROUS TIP

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The symptoms and signs, the essential pathologic changes and the treatment of simple mastoiditis are known to physicians throughout the world. In the last few years, otologic journals have contained many reports of a similar but somewhat more obscure disease of the temporal bone; namely, petrositis or inflammation of the petrosal portion of the bone. During the four years that routine serial sections of the temporal bones have been done in the Department of Pathology of the Presbyterian Hospital, six cases of meningitis of otic origin have been sectioned out of 1,165 general autopsies. All these patients had petrositis.[1] Four of the six proved cases were from the medical wards and two from the ear service. This suggests that the disease might be of considerable interest to the general medical man.

Suppurations of the temporal bone other than those in the middle ear, mastoid and zygoma have been recognized more and more since 1904, when Gradenigo[2] first described a syndrome of external rectus paralysis and trigeminal pain associated with a discharging ear. He laid particular stress on the external rectus paralysis, which he ascribed to disease of the bone in the neighborhood of Dorello's canal, in which runs the abducens nerve. In other words, he described a type of posterior petrositis. Many writers since Gradenigo have shown that unilateral trigeminal pain is perhaps the most important symptom of petrositis, because sixth nerve paralysis can be caused by many other conditions.[3] But the most characteristic pain, which is behind the eye, can also be produced by cavernous, petrosal or sigmoid sinus thrombosis, by brain tumor or brain abscess of metastatic origin, as well as by a simple toxic neuritis of the fifth nerve from a distant focus, so that these must be considered in the differential diagnosis of the disease.

Recently Kopetzky and Almour[3] have written a monograph on petrositis in which they survey the literature and clarify the subject. They have furthermore devised an operation to drain the petrous tip. They pass a dental drill between the cochlea and the carotid canal, or above them, and so afford an outlet for the pus in the bone beyond. Eagleton[4] has also developed an operation for draining the tip and the basilar meningitis, which often occurs when a suppurative process breaks through the cortex of the tip. He makes a large decompression based on the approach to the gasserian ganglion operation for tic douloureux and then skeletonizes the temporal bone posteriorly if there is a meningitis present.

In a study of this subject it is important to remember that not only the mastoid and zygomatic portions of the temporal bone may be pneumatized. Kopetzky and Almour estimate that about one third of all temporal bones show some air cells in the petrous tip. It has been shown by Wittmaack[5] that the air cells in the mastoid are developed by invagination of epithelial elements from the middle ear. The cells in the petrosa are developed by a similar invagination. The air cells communicate with one another and, more important still, they communicate with the middle ear, so that if there is an inflammatory process in the middle ear there is usually more or less inflammatory reaction in the mastoid and the petrous cells. That is, with every otitis media there is always more or less mastoiditis, and if there are cells in the petrosa, always more or less petrositis. The more pneumatized the petrosa, the more likely is involvement of this portion of the bone, but occasionally, as will be described later, there is disease present even when the spaces between the bone trabeculae are entirely filled with marrow.

The diagnosis of petrositis is not as easy as that of simple mastoiditis; a series of histories, however, shows that there is a more or less typical disease picture.

REPORT OF CASES

CASE 1.—A Negro, aged 37, a music teacher, had a mild ache in the left ear four weeks before his admission to the hospital. Two weeks before admission a left sided frontal and parietal headache developed for which he consulted a physician. The latter treated him for sinusitis without relief. The day before admission the patient had quite a severe headache, but he managed to work all day. That evening he began to vomit and then quickly became delirious. He was admitted next morning to the medical wards in a coma with a temperature of 106.5 F. and all the classic symptoms and signs of meningitis. There was slight bulging of the left drum, but no pus appeared after myringotomy. Examination of the throat, chest and abdomen was entirely negative. The spinal fluid contained 130,000 cells per cubic millimeter, with 89 per cent polymorphonuclear neutrophils and pneumococcus type III. Culture of the blood was negative. He died in the evening, twenty-four hours after first going into coma.

Roentgenograms in the mentovertical position taken after death show a definite washing out of the cells of the tip on

From the Department of Pathology, Columbia University College of Physicians and Surgeons, under funds from the Department of Otolaryngology, the New York League for the Hard of Hearing and the American Otological Society.

1. Head permission is granted in only one third of the cases and, in at least two suspected cases, microscopic preparations have not as yet been made.

2. Gradenigo, Giuseppe: Arch. f. Ohrenh. **62**: 255, 1904.

3. Perkins, C. E.: Ann. Otol., Rhin. & Laryng. **19**: 692, 1910. Kopetzky, S. J., and Almour, Ralph, ibid, **39**: 966 (Dec.) 1930, **40**: 157 (March) 1931.

4. Eagleton, W. P.: Unlocking of the Petrous Pyramid for Localized Bulbar (Pontile) Meningitis Secondary to Suppuration of the Petrous Apex, Arch. Otolaryng. **13**: 386 (March) 1930.

5. Wittmaack, Karl: Ueber die Pneumatization des Schläfenbeines, Jena, Gustav Fischer, 1918.

the left side (fig. 1). There is some thickening of the cell walls on both sides suggestive of a chronic disease of long standing or repeated attacks of otitis. Curiously enough, however, when the temporal bones were removed there was very little gross difference between the two sides. Perhaps the left petrous tip was a bit more succulent, but several observers were unable to be sure of any disease in either side. However, microscopically there is a vast difference. The temporal bones are of the pneumatic type (fig. 2). On one side the cells are filled with a purulent exudate, consisting of large mononuclear cells and occasional polymorphonuclear neutrophils (fig. 3). The cell walls are thick and in many places there is a regrowth of pink staining bone as well as areas of osteoid, which suggests a chronic as well as an acute process (fig. 4). There is a mild inflammatory process in the cells of the mastoid and petrous on the right. Here, too, there may have been a chronic osteitis. It is significant that grossly this lesion was not apparent. After all, the surgeon sees the lesion grossly and in

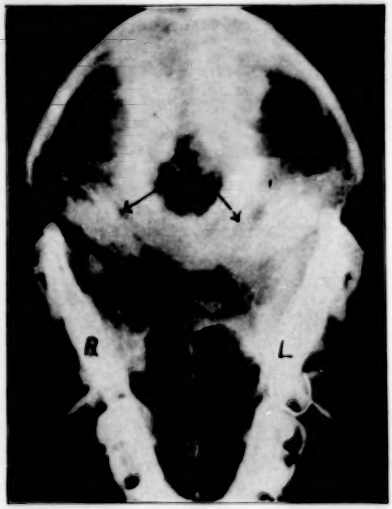

Fig. 1 (case 1).—Base plate in the mentovertical position. Pneumatization has occurred and cells in the mastoid and petrosa on the left have a more "washed out" appearance.

this case he would have found no creamy pus and he would have found no necrotic bone. With the hemorrhage always present in mastoid operations, this bone would have looked perfectly normal to him.

The mode of invasion of the meninges in this case is problematic. There is no break in the dura, macroscopically. With the low power of the microscope, however, many small cells are seen to drain into the vessels of the dura. Since this is a common finding in ordinary mastoiditis, one is forced to the theory that the virulence of the organism in this case was responsible for the infection of the meninges.

Case 2.—A man, aged 21, one week before admission came to Vanderbilt Clinic with a history of five or six days of pain in both ears. Myringotomy was done and considerable relief obtained. The next day there was no drainage from the ears and no more pain. Three days later the patient returned to the clinic and reported that he was feeling well. There was at this time also no drainage from the ears. Six days after the myringotomy, he was admitted to the ear service with a history of severe left sided headache and delirium since the night before. A thin purulent material was discharging from the left ear. Examination of the nose, throat, chest and abdomen was negative. He had a stiff neck, and a positive Babinski and Kernig reflex. Lumbar puncture showed 5,000 cells with 90 per cent polymorphonuclear neutrophils and an encapsulated diplococcus, which on culture proved to be pneumococcus type III. Roentgen examination showed a clouding of the cells in the left mastoid. A simple mastoid operation was done, but the patient's temperature climbed to 106 F. and he died the day following admission. Culture from the left mastoid showed pneumococcus type III, as did a blood culture. Autopsy showed a meningitis, most marked at the base, and no involvement of the large venous sinuses. There was no portal of entry apparent in the dura. Microscopically there was an inflammaory lesion in both petrous tips, but much more on the left than on the right. There was also much less inflammation in the cells about the cavity made by the operation than there was in the cells of the tip. About the carotid canal were dehiscences through which an inflammatory process was invading the wall of the carotid artery. Since the vasa vasorum of the artery drain from the subarachnoid space, it is conceivable that the invasion of the meninges in this case was a retrograde affair along these vessels. Similar cases have been described by Freisner and Druss[6] and others.

Case 3.—This case was similar, but less acute. A man, aged 24, a divinity student, two months before admission had had "grip" and an acute otitis. Three weeks after myringotomy he developed right sided frontal headache, thought to be sinusitis. Thirty-six hours before admission meningeal symptoms developed. Pneumococcus type III was recovered from a simple mastoid operation and he died four days later.

At autopsy he had a diffuse leptomeningitis. The dura over the mastoid was perforated. More medially in the neighborhood of the gasserian ganglion, and not connected with the perforation, the bone under the dura was soft, necrotic, yellowish and crumbly. Microscopically all the intertrabecular spaces of the bone were filled with a purulent exudate so that the labyrinth was practically sequestrated. There was a break in the wall of the internal auditory meatus anteriorly, which was probably the route of invasion of the meninges.

Case 4.—This case ran a somewhat more chronic course. A man, aged 45, had had a right sided otitis media off and on for twenty years. One day there was a cessation of the discharge for three or four hours accompanied by excruciating pain on the right side of the head just lateral to the eye. Although the ear began discharging again, pain continued. Three days later he was admitted to the medical wards with symptoms of meningitis. In the spinal fluid were 3,000 cells, 90 per cent polymorphonuclear neutrophils, but no organisms. A simple mastoidectomy was done and a cholesteatoma found. The right sided headache disappeared and the temperature went down for five days, but then the headache reappeared and the patient died two weeks after admission.

At autopsy an abscess was found in the right temporal lobe and purulent material could be seen draining into the meninges from the cells of the petrous. This case is similar to the first and in all probability the drainage was through venous or lymphatic channels into the dural systems.

Case 5.—A woman, aged 54, had had a chronic left sided otitis following scarlet fever at the age of 12. She had diabetes and a chronic process in the head of the right humerus, thought to be a typhoid osteomyelitis. She was admitted twice without any mention of headache or any symptoms referable to the ear except chronic discharge. On her third admission a radical mastoidectomy was done to eradicate the chronic focus of infection. After the operation the discharge continued profusely and a revision of the mastoidectomy was done one month later. The discharge still continued. Five months after the operation she came in with severe headache in the frontal and occipital regions definitely lateralized to the left, with many attacks of vertigo and fainting. She came in with a stiff neck, a positive Babinski reflex and tenderness over the mastoid on the left. The spinal fluid contained 700 cells, 60 per cent polymorphonuclears and a hemolytic streptococcus. A new revision of the mastoid was attempted, but she died a few hours later.

6. Freisner, L., and Druss, J. G.: Osteitis of the Petrous Pyramid of the Temporal Bone, Arch. Otolaryng. **12**: 342 (Sept.) 1930.

Autopsy showed a break in the dura over the petrous tip, which had a greenish tinge and was soft and necrotic. Microscopically all the spaces in the left temporal bone were filled with exudate and granulation tissue. She had a purulent labyrinthitis, as well as mastoiditis and petrositis. There was a small area in the endochondral capsule near the second turn of the cochlea, where there was an osteitis of the wall.

CASE 6.—A Grecian woman, aged 35, in whom generalized edema had developed at the age of 10 following scarlet fever, at this time also had her first running ear. The edema reappeared with her third pregnancy and the patient was

Fig. 2 (case 1).—Well pneumatized petrosa. Horizontal section through the superior semicircular canal from normal (right) side.

followed in the hypertension-nephritis clinic for two years with a diagnosis of chronic glomerular nephritis. Two months before admission she had an attack of edema, hematuria and vomiting following a cold. She was admitted with a blood pressure of 178 systolic, 114 diastolic, her physical examination being typical of chronic glomerular nephritis. There is no record of any recent trouble in her ears. However, while she was in the ward pain developed in both ears, especially in the right. Myringotomy was done and a green streptococcus with a few colonies of hemolytic streptococcus was recovered. The spinal fluid showed 152 cells and a positive culture for hemolytic streptococcus after many days of growth. Roentgen examination of the mastoid showed slight clouding on the right. The patient became rapidly worse and finally a right simple mastoidectomy was done. A few days later she lost the slight improvement which directly followed the operation, she became comatose, both eyes deviated externally, reflexes were weak on the left, her neck was stiff, and the patient died in coma two weeks after the operation, with a clinical diagnosis of chronic glomerular nephritis.

At autopsy she showed the typical changes of a chronic intracapillary glomerular nephritis, and in addition a subdural abscess beneath the right temporal lobe, whose base lay in the petrous tip (fig. 5). The abscess was ruptured and an acute leptomeningitis was also present. Microscopically there was very little inflammatory disease in the cells about the cavity made by the operation. In the petrous tip no cortex was present superiorly where the abscess had lain, and the marrow below showed a chronic osteomyelitis.

COMMENT

Some of these cases presented well pneumatized tips and some did not. In the classification of Kopetzky and Almour,[8] those with pneumatized tips would have been called "petrositis" and those with diploic tips would have been called osteomyelitis. In reality the term "petrositis," which means inflammation of the petrous portion of the temporal bone, should be used as a general diagnosis and should have as subheadings (1) osteitis of the tip, i. e., inflammation of the bone separating the air cells of a pneumatized tip; (2) osteomyelitis of the tip, i. e., inflammation of the marrow and the bone of the tip, and (3) osteitis or osteomyelitis, as the case may be, of the perilabyrinthine regions. In pathologic material when a diseased tip is only partially pneumatized there is an osteitis of the cells near the middle ear and then if the process proceeds farther an osteomyelitis of the remainder of the bone, while if the tip is wholly pneumatized there is simple necrosis of the bone and mucoperiosteum of the air cells. Both could be called petrositis and both might end in meningitis and death.

The patients in this report all died with the same primary disease, suppuration of the bone about the labyrinth. Presumably this suppuration was an extension from middle ear disease. Why did they die? In microscopic section they all showed some evidence of chronic otitis. In each case there was some sclerotic bone about the hypertympanic space. Is it not possible that previous inflammation produced bone of the type shown in figure 4 in the cells about the orifice of the eustachian tube and so cut off proper drainage from the tip? There are large enough spaces in this bone for infection to enter, but with swelling of the mucoperiosteum secondary to the inflammation, return drainage would be impossible and the process would seek other outlets for escape. This occurs in the mastoid. It is very common to find great destruction of the air cells in cases presenting highly sclerotic antrums and a history of past healed otitis media. This sclerosis of the antral cells has been claimed to be due to faulty development.[5] In some cases it probably is, but most otologists will agree that often it is obviously the result of inflammatory disease. Sections of these cases show growing bone about the middle ear and good pneumatization elsewhere. This would indicate that the original pneumatization was normal but that bone grew in and blocked off certain pneumatized areas. The anatomic arrangement of this sclerotic bone probably determines the route of invasion of subsequent infections. This is an argument against too conservative treatment of chronic middle ear disease, for certain virulent organisms such as pneumococcus type III and the hemolytic streptococcus pass through or around the sclerotic bone with greater ease and then, as suggested before, drainage is shut off by swelling mucoperiosteum, and a serious condition is produced in distant portions of the bone.

Fig. 3 (case 1).—Well pneumatized petrosa and mastoid filled with exudate. The diseased side. Compare with figures 1 and 2.

There is considerable controversy as to the incidence of petrositis. It is rightly stated that no one symptom or group of symptoms is always pathognomonic of the disease. Pathologic sections from routine autopsies undoubtedly show a higher incidence of exudate in the petrosa than can be apparent clinically. It would seem that a purulent discharge from the middle ear, especially the anterior part of the middle ear, after a satisfactory simple or radical mastoidectomy, is perhaps the most reliable sign of disease in the petrosa. If the

zygoma, mastoid and middle ear have been well cleaned out, where else can the discharge come from? If in addition there is trigeminal pain or internal strabismus, or roentgen evidence of destruction in the tip, further surgical intervention is to be considered. After all, entirely too many of these patients die. Out of ninety-five cases of abducens paralysis, in most of which recovery occurred, there were thirteen cases reported by Perkins[3] as definite petrositis; of these patients, only one lived. The others died of meningitis or complications due to the suppuration in the tip breaking into the posterior pharynx. On the other hand, the forty-two patients with trigeminal pain presumably from other causes recovered.

To illustrate that something conservative can be done, even when there is suppuration in the petrous tip, the following case is reported from the service of Prof. Cornelius G. Coakley, through the courtesy of Dr. John Kernan:

G. S., a white boy, aged 7 years, admitted in December 1930, had a typical left otitis and mastoiditis. A simple mastoidectomy revealed a highly pneumatic mastoid and zygoma and many scattered cells filled with yellow pus. The upper part of the posterior wall was broken down as well as the mastoid tip and the sinodural angle. After operation the patient had a high temperature for a few days and continued to discharge a serous exudate from the external canal for many months. One year later (Dec. 11, 1931) he was admitted for a modified left radical mastoidectomy. The canal was found to be markedly narrowed by proliferation of bone along the posterior wall. The middle ear and antrum were filled with granulation tissue but the remaining cells of the mastoid were surprisingly healthy. December 27 there was a rise in temperature associated with swelling behind the ear. Reopening the wound under gas and oxygen revealed very little pus in the mastoid cavity but considerable creamy pus in the middle ear. This continued to discharge and produced a large amount of granulation tissue, which kept blocking the external canal in spite of frequent curetting and application of silver nitrate. By Feb. 25, 1932, he had begun to complain of pain in the left eye and a low grade fever had developed. He was seen by Dr. Kernan, who advised a roentgen examination of the petrous tips.

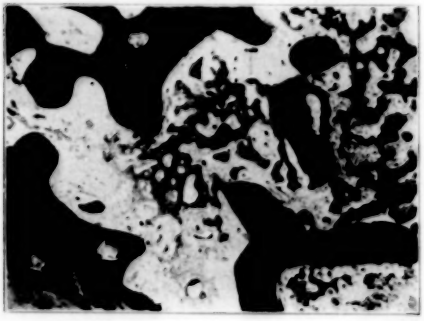

Fig. 4 (case 1).—Osteoid tissue and new bone from the region of the eustachian tube. (Leitz 3 objective.)

Dr. Ross Golden reported that films of the skull in the mentovertical position, and stereoroentgenograms in the Caldwell position, showed the right petrous pyramid to be pneumatized at its tip. A little farther out its shadow was markedly increased in density. The stereoroentgenograms showed an apparent destruction of the upper margin of the left petrous bone beginning at its tip and extending laterally to 2.5 cm. It looked as though this destroyed area began only about 1 cm. inward from the point where the mastoid operation left off. The picture was quite characteristic of petrositis, as described by Taylor.[7]

Dr. Kernan operated, March 9, and reported that the cavity of the previous operation, which embraced the mastoid and the middle ear, was found to be full of soft granulations and pus. There was an area of necrosis with a fistula in the roof of the eustachian tube. The fistula led to an abscess supposed to be about the tip of the petrous portion of the temporal bone. The bone underlying the granulation tissue had a soft wormy appearance.

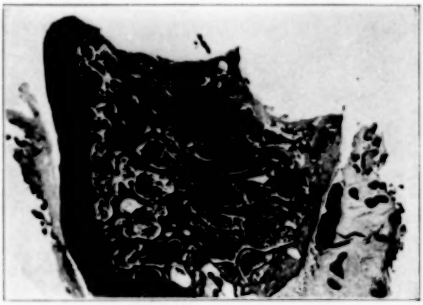

Fig. 5.—Base of temporal lobe abscess in petrosal tip. Note absence of cortex and chronic osteomyelitis. Slightly reduced from a photomicrograph with a magnification of 10 diameters.

An incision was made along the line of the previous scar. The ear was turned forward. All the granulation tissues were scraped out of the mastoid cavity and middle ear, and the bony wall was exposed. The facial canal, promontory, oval window, carotid, canal and eustachian tube were all identified. When the probe was being passed into the eustachian canal a fistula was found leading upward and inward, which exuded about 1 drachm (4 cc.) of thick pus. The tegmen tympani was then taken away and all bone in the region of the eustachian tube, exposing the area of the fistula. The cavity was packed with iodoform gauze and the wound was left wide open.

After the operation the pain in the eye disappeared and the aural discharge slowly decreased in amount. In three months the canal was dry but a small sinus developed which drained serous fluid for still another three months. Now, one year after the last operation, he is perfectly well and there is no discharge from the ear.

CONCLUSION AND SUMMARY

1. Petrositis is much more common than is generally supposed.

2. Meningitis often brings patients with petrositis to the general medical man or neurologist. The eye symptoms occasionally bring him to the ophthalmologist.

3. Petrositis should be considered in the presence of trigeminal pain, abducens paralysis or an aural discharge after a well executed mastoidectomy.

4. Petrositis should be watched for on the affected side if the mastoid and zygoma on either side is highly pneumatized. The two sides usually pneumatize in the same fashion. If one side becomes sclerotic, especially about the antrum or hypertympanic region, this sclerotic bone may cut off drainage from the deeper and more pneumatized portions of the bone and so lead to pockets in the mastoid or petrosa.

5. Partial pneumatization may lead exudate into the tip, where it may pocket or extend into the marrow spaces to produce an osteomyelitis.

7. Taylor, H. K.: Ann. Otol., Rhin. & Laryng. 40: 367 (June) 1931.

6. Petrositis usually subsides spontaneously with adequate drainage from the middle ear. If this is not facilitated by the ordinary mastoid operations, further curetting, especially in the peritubal and perilabyrinthine regions, will often uncover a pocket of pus.

7. Inadequate drainage of the petrosa may result in a chronically discharging ear or meningitis and death.

8. The method of invasion of the meninges may be manifold, either directly through a subdural abscess or through the veins draining the area, through the labyrinth, through the carotid sheath or through the blood stream.

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A BETTER METHOD OF TREATING FRACTURES OF THE JAWS

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The management of regional fractures has engaged the attention of the general surgeon and the specialist throughout the history of surgery. The only answer to any medical discussion is the patient himself. Whatever method contributes most to the well being of the sick or disabled is the method of choice. The principles and methods of modern orthodontia supply the

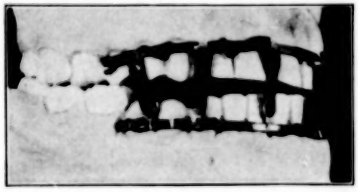

Fig. 1.—Common type of jaw fracture.

means of managing fractures of the jaws, regardless of the type or extent of injury. The more difficult the case, the more convincing and satisfactory the method becomes. In fractures of other bones, immediate reduction and immobilization are required. In fractures of the jaws with displacement, immediate complete reduction is rarely possible. Here one must be content with gradual reduction. Overriding fractures of the femur present the sort of problem seen in the majority of all jaw fractures. Even the beginning of treatment may be delayed for days or weeks because of complications such as associated fractures of the skull, concussion, serious general injury and infection, and still a good result may be obtained. The orthodontist has given a very important principle in the movement of the roots of teeth in the jaw. He has shown that mechanical irritation, brought about by pressure in regulating teeth, stimulates the activity of the osteoclasts on one side of the root and osteoblasts on the other. This principle is very important in the management of old fractures. Moreover, speaking parenthetically, elastic traction is most useful in the management of large defects in the skin from burns, wounds and the like. Elastic traction used over a sufficient period will make possible immediate removal and closure of a large defect which ordinarily would call for skin grafting, pedicle or tube flap and similar procedures.

The majority of and by far the most frequent complicated fractures of the jaw occur in the mandible. From the cuspid to and including the angle, the greatest number are seen. Fractures of the ramus and condyle are less frequent. Fractures between the cuspids

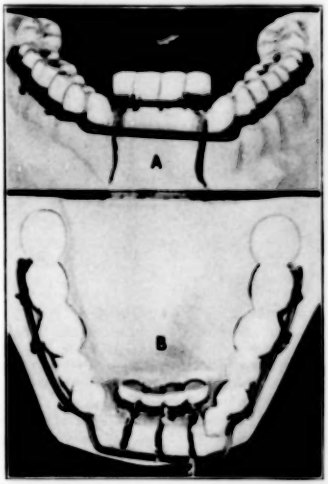

Fig. 2.—Reproduction of a fracture recently under management. *A*, the wire is fashioned to fit the arch and also to extend forward from the cuspid teeth. *B*, showing the application of the rubber bands. The four teeth in the fractured segment were driven backward and upward.

are usually associated with fractures in the bicuspid and molar region and at the angle. Fractures involving the ramus or condyle usually require no treatment. Displacement is rare. When the patient is informed that his jaw is fractured in these localities, he will exercise sufficient care to insure a good result without immobilization.

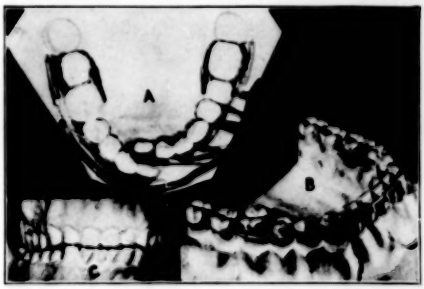

Fig. 3.—*A*, exact reproduction of appliance used on a fracture seven weeks old before any treatment was undertaken. There was no bony union. *B*, regulation Angle ribbon arch. *C*, plaster model made from impressions taken on completion of the case.

The most frequent fracture of the upper jaw is associated with the incisors and cuspids. Direct violence, will produce a fracture of the alveolar process with the teeth loosened, broken or knocked out. The

jaw bone proper is not involved. The alveolar process is easily molded back to normal alinement and the teeth are held by a figure of eight silk ligature. When the roots are fractured or the circulation to the pulp is destroyed, the problem is one for the dentist to manage. Unilateral or total fractures of the upper jaw are next in frequency and require very specific management.

My purpose in this brief thesis will be served best by illustrating in detail these various types of fractures

Fig. 4.—Direction of traction in relation to the line of fracture.

and their treatment. I employ elastic traction in practically all cases in which reduction is required. The mechanism employed in reduction frequently serves equally well for satisfactory immobilization. Under traction the parts are brought into proper relation and held with slight movement, which materially aids in repair. Any fracture held in anatomic alinement and held with slight movement will repair more rapidly than one completely immobilized. This factor, when combined with ease, simplicity and accuracy, proves the value of the method.

Figure 1 illustrates a common type of jaw fracture. This figure may represent as well a fracture at any point from the cuspid to the third molar. The short

Fig. 5.—Skull cap and chin support made with starch bandage, hooks and rubber bands adjusted as indicated.

fragment is pulled up by the masseter internal pterygoid and temporal muscles, while the long fragment is pulled down by the mylohyoid, digastric geniohyoid and external pterygoid. Reduction is easily brought about by a simple appliance. A flat or round wire is molded with a pair of pliers to fit the arch and is fastened to the neck of the teeth with wire or silk ligatures. Orthodontia rubber bands are attached to the wire on each jaw with silk ligatures. As soon as full occlusion is reached the pull automatically ceases, and the appliance then acts to hold the bones in proper line, and the patient may keep the appliance therefore until union has taken place. After two or three weeks the rubber bands may be removed to see whether occlusion is retained, without help, and if so the appliance may be discarded and a retaining appliance, shown in figure 3 *B*, may be used if necessary.

Figure 2 illustrates the reproduction of a fracture recently under management. The wire is fashioned to fit the arch and also to extend forward from the cuspid teeth to provide ample space for the application of rubber bands. The four teeth in the fractured segment were driven backward and upward. Reduction, therefore, called for forward and downward traction. This type of appliance may be used in other similar fractures.

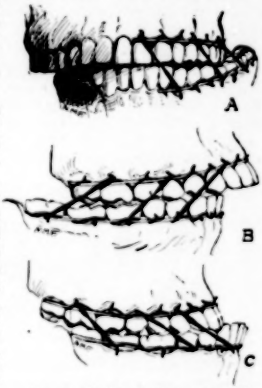

Fig. 6.—*A*, lateral displacement; *B*, forward displacement; *C*, backward displacement. In forward and backward displacements, traction is always made on both sides. When the displacement is lateral, the correction can usually be made by traction on one side. If not, an extra rigid wire should be used to include all teeth in each arch. With all teeth in both arches solidly fixed, adequate traction may be made from one side. The appliance inside the mouth is used conjointly with the head and chin caps.

Figure 3 *A* is an exact reproduction of a fracture seven weeks old before any treatment was undertaken. There was no bony union. The marked overriding complicated both reduction and immobilization. This appliance was made by Dr. B. O. Sippy, orthodontist. The rubber bands are attached to the wire extending well outside the teeth on the left. The elasticity of the rubber bands and the spring in the wire furnished double traction. In two days the reduction was complete. This appliance was kept in place a month, when an immobilizing appliance, figure 3 *B*, was used. This is the regulation Angle ribbon arch. This retaining appliance may be used for lower jaw fractures and is very useful for working people. Full use of the jaw is permitted in eating soft food and talking. Figure 3 *C* is a plaster model made from impressions taken on completion of the case. This case illustrates one of the most difficult jaw fractures, managed easily and with perfect result by traction.

Figure 4 illustrates the direction of traction in relation to the line of fracture. The roentgenogram will show the line of fracture, and traction should be applied directly in this line.

Total fractures of the upper jaw with downward and backward, downward and forward, or downward and lateral displacement are reduced best by the appliance shown in figure 5. A skull cap and chin support are made with starch bandage, hooks and rubber bands

adjusted as indicated. In a few days the upper jaw will be pushed up to a normal position. Forward, backward or lateral displacement is usually corrected as the jaw is pushed up. If, however, these displacements are not corrected, additional correction may be used, as illustrated in figure 6.

The head appliance is used with equal success in edentulous jaws. The patient's artificial dentures are placed in the mouth and traction is applied. If the dentures have been broken, they can usually be repaired by the dentist.

The greatest difficulty arises in edentulous jaws when the artificial dentures have been lost or so badly broken that they cannot be repaired. The dentist then can build a vulcanite splint, which may be used instead of the artificial dentures. It is rarely necessary to wire the fragments by an open operation. The partially edentulous mouth will have to be dealt with according to varied conditions.

Unilateral fractures of the upper jaw, with downward displacement, are managed as shown in figure 7. The appliance is placed on the opposite side from the fracture. Traction on the sound side will push the fractured jaw upward until full occlusion is reached.

A simple method of holding lateral stumps of the lower jaw, following resection of the anterior portion, is shown in figure 8. This may also be used to hold one half of the lower jaw following resection of the opposite half. The rubber bands hold the jaw in occlusion with the upper jaw without fixing it. This simple appliance holds the stump or stumps in line during the process of healing and simplifies the introduction of a bone graft later.

A problem of paramount importance is infection. Most jaw fractures are compound, and a majority of these are infected to a lesser or greater degree, in some cases leading to abscess formation and even to necrosis. Vigorous means should be employed as soon as the patient is seen to prevent or control infection. The mouth should be cleansed, first by removing gross deposits of tartar from the teeth, followed by the use of hydrogen dioxide, 25 per cent, and iodosaline. For

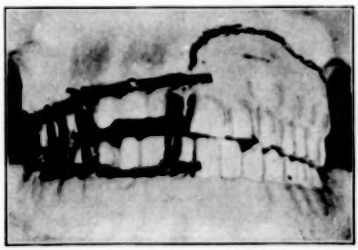

Fig. 7.—Unilateral fractures of the upper jaw with downward displacement.

practical purposes iodosaline may be prepared by using one-half teaspoonful of salt to an ordinary glassful of hot water. To this is added from 30 to 40 drops of tincture of iodine. The hydrogen dioxide is used first and then the iodosaline. The mouth should be vigorously rinsed with these solutions every two or three hours. A stronger solution of tincture of iodine should be employed to irrigate the wound or wounds in the soft tissues leading to the point of fracture. For this, a water syringe with a fine metal point is used. The Berlin syringe, made by the S. S. White Dental Manufacturing Company, is ideal. Too much emphasis cannot be laid on scrupulous hygiene of the mouth during the period of treatment.

Another item that needs special attention is the amount of traction to be applied. Until one has had some experience, one will invariably apply too much force. It is far better to apply too little than too much.

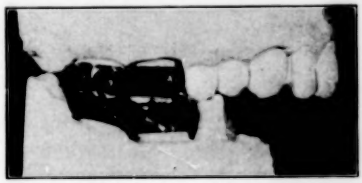

Fig. 8.—Simple method of holding lateral stumps of the lower jaw, following resection of the anterior portion.

One should start with a moderate amount of traction and watch the case for twenty-four or forty-eight hours. If sufficient progress is not being made, one or two additional bands should be added on each side. Again judgment will have to be exercised, for in one case reduction should be complete in a day or two while in another case one may reasonably figure on a week or more. It follows, naturally, that if too much traction is applied to the slow case, harm is apt to follow. In all cases the teeth must always be fastened *en bloc*. A rubber band must not be attached to an individual tooth; the rubber bands are always attached to the wire, which in turn is attached to all the teeth in the field. The pull, therefore, is equally distributed and will never result in a tender or loose tooth.

The illustrations are intended to emphasize the principle and method of treating fractures of the jaw. The details of making and adjusting the simple appliances are naturally related to the individual case. Talking and taking soft and liquid foods are not interfered with in the use of elastic bands. The mouth may be kept clean and the patient quite comfortable throughout the period of management.

30 North Michigan Avenue.

Studies That Widen the Sympathies.—Professional work of any sort tends to narrow the mind, to limit the point of view and to put a hall-mark on a man of a most unmistakable kind. On the one hand are the intense, ardent natures, absorbed in their studies and quickly losing interest in everything but their profession, while other faculties and interests "fust" unsued. On the other hand are the bovine brethren, who think of nothing but the treadmill and the corn. From very different causes, the one from concentration, the other from apathy, both are apt to neglect those outside studies that widen the sympathies and help a man to get the best there is out of life. Like art, medicine is an exacting mistress, and in the pursuit of one of the scientific branches, sometimes, too, in practice, not a portion of a man's spirit may be left free for other distractions, but this does not often happen. On account of the intimate personal nature of this work, the medical man, perhaps more than any other man, needs that higher education of which Plato speaks, "that education in virtue from youth upwards, which enables a man eagerly to pursue the ideal perfection." It is not for all, nor can all attain to it, but there is comfort and help in the pursuit, even though the end is never reached.—Sir William Osler, The Master-Word in Medicine, Address delivered at Toronto, 1903.

PAINFUL HEELS AMONG CHILDREN (APOPHYSITIS)

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Since the discovery of roentgen rays less than forty years ago, the study of the pathologic physiology of bone has been markedly facilitated and, as was to be expected, a number of hitherto unknown pathologic conditions of bone have been revealed. Beginning with Osgood's report in 1903, an important group of syndromes, accompanied by certain definite symptoms and by similar epiphyseal changes observed roentgenographically, have been described and elevated to the dignity of specific diseases. Among these diseases are: avulsion of the tibial tubercle (Osgood, 1903; Schlatter, 1908), tarsal scophoiditis (Kohler, 1908), osteochondritis deformans of the hip (Legg, 1910; Perthes, 1910), infraction of metatarsal heads (Freiburg, 1914), kyphosis dorsalis juvenilis (Buchmann, 1925) and traumatic malacia of the carpal semilunar bone (Kienböck, 1910). Furthermore, it has gradually become apparent that there are marked similarities in the general pattern of these diseases, for they all seem to follow trauma of one kind or another, occur generally in growing children, affect ununited epiphyses, and are very often accompanied by such characteristic roentgenographic evidence of changes in epiphyses as rarefaction, fragmentation and, later, abnormal calcification.

A seemingly uncommon type of this epiphyseal involvement is epiphysitis of the heel, or the so-called calcaneal apophysitis[1] that is evidenced by painful heels and a limp among young, rapidly growing boys.[2] To date, less than forty cases of this condition have been reported in the literature, although doubtless many other cases have been seen from time to time that have not been reported.[3] As we shall mention later, only twenty-one such cases have been seen in the Mayo Clinic.

ETIOLOGY

The epiphysis of the heel is a "pressure epiphysis" and is subject to direct trauma. In this respect it is similar to the epiphyses of the femoral head or vertebral bodies. Furthermore, as in the epiphyses of the tibial tubercle or olecranon, the epiphysis of the heel is also a "traction epiphysis" and is subject to strong lateral pull from the attached muscles.[4] Consequently, the heel is unique in being subject both to direct and to indirect trauma. Another distinction of the epiphysis of the heel is that it is encased in tendinous tissue and is situated at a point where a strong pull from the muscles is deflected around an angle. In the transformation from amphibian to mammalian posture the ankle joint became dorsiflexed, the achilles tendon was pulled over the tip of the calcaneus, and gradually a sesamoid bone developed at this point of pressure. In addition, man's erect posture led to a lengthening of the body of the calcaneus, posteriorly, to provide more leverage in the power arm, and to the development of a longitudinal arch in the foot.[5] These changes in turn brought the sesamoid of the achilles tendon (the calcaneal epiphysis) in close relation to the posterior aspect of the heel. Thus the epiphysis of the heel still retains its strong tendinous attachments above and below; the pull of the muscles of the calf is, for the most part, counteracted by the strong plantar ligaments, and epiphyseal separation is unknown in this region.

Fig. 1.—Calcaneal epiphysitis. Arrow denotes sclerotic epiphysis with transverse fracture lines.

OCCURRENCE

Epiphysitis of the heel occurs most commonly in boys between the ages of 8 and 12, or during the period of their greatest growth. A history of definite injury may or may not be elicited, although, in any case, these youngsters are usually active and vigorous. The condition ordinarily is bilateral. At first, slight pain at the back of the heel is noted, the patient walks with a limp, and soon he finds it uncomfortable to complete the step. There may also be aching pains along the achilles tendon or in the muscles of the calf. Climbing stairs becomes quite painful and, at times, these children may walk on their toes in order to relax the pull of the achilles tendon.

On examination, the heels are found to be tender posteriorly, and there may be some lateral thickening at the insertion of the achilles tendon. There is voluntary limitation of dorsiflexion of the foot, and forced motion aggravates the pain. Often the children are overweight or present other gross evidence of glandular

From the Section on Orthopedic Surgery, the Mayo Clinic.

1. Jacobsthal, H.: Ueber Fersenschmerzen, Arch. f. klin. Chir. **88:** 146-190, 1909. Sever.[3]

2. Haglund, Patrik: Ueber Fraktur des Epiphysenkerns des Calcaneus, nebst allgemeinen Bemerkungen über einige ähnliche juvenile Knochenkernverletzungen, Arch. f. klin. Chir. **82:** 922-930, 1907.

3. These have been reported by:
Allison, Nathaniel: Apophysitis of the Os Calcis, J. Bone & Joint Surg. **22:** 91-94 (Jan.) 1924.
Balenswig, Irvin: Affections of the Epiphyses Peculiar to the Second Decade, M. J. & Rec. **124:** 144-147 (Aug. 4) 192-197 (Aug. 18) 1926.
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Fairbanks, H. A. T.: Some Affections of Epiphyses, Brit. M. J. **1:** 260-261 (Feb. 7) 1925.
Jacobstahl.[1]
Lewin, Philip: Apophysitis of the Os Calcis, Surg., Gynec. & Obst. **41:** 579-582 (Nov.) 1925.
Merlini, Antonio: Ueber die sogenannte Apophysitis des Kalkaneus, Ztschr. f. orthop. Chir. **49:** 249-271, 1927-1928.
O'Ferrall, J. T.: Apophysitis of the Os Calcis, South. M. J. **19:** 549-550 (July) 1926.
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4. Parsons, F. G.: Observations on Traction Epiphyses, J. Anat. & Physiol. **38:** 248-258 (April) 1904.

5. Bland-Sutton, John: Selected Lectures and Essays, Including Ligaments, Their Nature and Morphology, ed. 4, London, William Heinemann, 1920. Straus, W. L., Jr.: Growth of the Human Foot and Its Evolutionary Significance, in Carnegie Institution Contributions to Embryology, Washington, **19:** 93-134, No. 101, 1927.

disturbance and, as Sever [3] pointed out, they are many times found to be wearing either low sandals or no shoes at all.

PATHOLOGIC CHANGES

The most convincing diagnostic feature of all, however, is the characteristic roentgenographic change that occurs with these symptoms. In the lateral view of the foot, the epiphysis of the heel is seen to be fluffy, moth eaten, somewhat flattened, or partially fragmented, according to the stage of the disease. Furthermore, there is usually considerable irregularity of the adjacent posterior surface of the calcaneum and a punched-out appearance in this region due to the alternation of areas of rarefaction with areas of increased density. Finally, the epiphyseal line typically appears cloudy and abnormally irregular. These changes, in varying degree, should assure a positive diagnosis.

Of the pathologic changes that take place in this disease, all are dependent directly or indirectly on disturbance in circulation. This may result from undue trauma to the peripheral nerves in the region that tends to alter the local blood supply. Leriche and Policard's hypothesis was that the injury was in the nature of an "axon reflex," trauma to nerves leading to vasodilatation and more or less permanent vascular imbalance; this in turn produced rarefaction of the bone and local tenderness. Afterward, local edema resulted which stimulated the increased calcification, so clearly seen in the roentgenogram [6] (fig. 1). Bentzon investigated the arterial supply of the calcaneus in this condition and concluded, similarly, that there was a "paralytic hyperemia" of the heel following trauma to nerves that led to proliferative phenomena ("pathologic callus formation" [7]). Others believed the disturbed blood supply followed a partial separation of the epiphysis from muscular pull, or from direct injury to the epiphyseal cartilage.[8] In any event, all symptoms disappear at the time of union of the epiphysis with the calcaneus and the consequent restoration of an adequate blood supply. Since the epiphysis of the heel normally appears late in the tenth year of life and unites with the calcaneus at the seventeenth year, it is apparent that apophysitis can occur only in this brief period of growth.[9] Scarlini [10] reported the condition in a woman, aged 22, but there were general features of the story that invalidate his diagnosis.

SYMPTOMS AND INCIDENCE

Apophysitis of the heel can be clearly distinguished from any similar syndrome on the basis of: (1) the restricted age incidence (from 10 to 17 years); (2) aggravation of symptoms by forced dorsiflexion of the foot; (3) prompt relief of symptoms by elevation of heel of shoe; (4) absence of general disease; (5) sharply localized tenderness over the attachment of the achilles tendon, and (6) the characteristic roentgenographic appearance. Inflammation of the bursa under the achilles tendon produces sharply localized tenderness but no roentgenographic changes. Subcutaneous bursitis over the heel is quite superficial and follows local irritation. Tenosynovitis of the achilles tendon usually manifests itself by palpable crepitation on movement. The painful heel of arthritis occurs in later life, is aggravated by focal infection, other joints may be involved, the tenderness is most often at the attachment of the plantar ligaments, and the roentgenograms usually reveal bony spurs at the points of tendinous insertion. Tuberculosis of the os calcis affects the body of the bone, produces more destruction and leads to more generalized tenderness. Osteomyelitis in this region is accompanied by severe generalized symptoms with acute pain and tenderness, and does not produce roentgenographic changes like those of apophysitis (fig. 2).

Twenty-one cases of apophysitis of the heel have been seen at the Mayo Clinic. There were two girls and nineteen boys in the series, including one pair of twin boys. The average age of onset of the disease was 10.2 and the ages ranged from 7½ to 17 years. Only two patients gave any history of a previous fall on the heels, although one patient mentioned a sprained ankle received some time before. One patient was born with marked bilateral clubfoot. Four patients stated that they were more comfortable when they walked on

Fig. 2.—Calcaneal epiphysitis. Arrow denotes area of osteomyelitis of the calcaneus, which had been drained surgically.

their toes; fourteen, or two thirds of the group, had bilateral involvement of the heels. One patient had had osteomyelitis of the calcaneus following a severe injury; the intensity of the pain varied from a slight ache or painless limp to a severe disabling cramplike pain in the calves of the legs.

TREATMENT

The treatment of this condition is palliative and, fortunately, is extremely simple. As a general measure, any focus of infection should be removed. Local heat and massage to the feet in the interval of acute pain may relieve the pain somewhat. But the most efficacious treatment consists of elevation of the heels to relieve tension on the achilles tendon. Heel pads in the shoes are also of benefit, and avoidance of any strenuous exertion is indicated until the acute phase of the condition is over. In the more severe or resistant cases it may become necessary to immobilize the foot, in slight plantar flexion, for several weeks with plaster-of-paris casts. Following this, the heels of the shoes must be raised to prevent any recurrence of symptoms. Symptoms subside promptly under such a regimen and, as mentioned before, the condition disappears when the patients reach the age of 17 years, when the epiphyses become completely united.

6. Leriche, René, and Policard, A.: The Normal and Pathological Physiology of Bone, St. Louis, C. V. Mosby Company, 1928.
7. Bentzon, P. G. K.: Ein Fall von Morbus Haglundii calcanei mit monströsen roentgenologischen Aenderungen, Acta. chir. Scandinav. **67**: 48-60, 1930.
8. Haglund.[3] Hass, Julius: Ueber die Ossifikationsstörung des Kalkaneusepiphyse nebst mikroskopischen Befund, Ztschr. f. orthop. Chir. **53**: 302-309, 1930.
9. Davies, D. A., and Parsons, F. G.: The Age Order of the Appearance and Union of the Normal Epiphyses as Seen by X-Rays, J. Anat. **62**: 58-71 (Oct.) 1927.
10. Scarlini, quoted by Bergmann.[11]

COMMENT

There is little doubt that the epiphyses of the heels of healthy children are often injured and that roentgenograms would reveal the typical structural changes of this disease. Very mild symptoms, or none at all, normally divert suspicion from the heels, and roentgenograms are not likely to be taken if symptoms are absent. Bergmann [11] found, in a large series of cases, that the characteristic roentgenographic changes of apophysitis were often present when symptoms were completely absent. Moreover, in almost 25 per cent of the cases observed at the clinic, the patients were sons of physicians who had easy access to roentgenographic services.

A factor that doubtless contributes to the frequency of this disease is the common modern practice of robust boys engaging in vigorous games in heelless athletic shoes. This undue strain on the calcaneal epiphysis during the period of greatest growth of the bones no doubt engenders an appreciable amount of epiphyseal change that is never discovered. Therefore, we feel justified in concluding that destructive changes in the epiphyses of the heels are common among young, vigorous children, and that failure to recognize them depends on absence of symptoms and consequent neglect in obtaining roentgenograms.

CONGENITAL HEART BLOCK

REPORT OF THE THIRD CASE OF COMPLETE HEART BLOCK STUDIED BY SERIAL SECTIONS THROUGH THE CONDUCTION SYSTEM

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It is becoming increasingly apparent that congenital heart block is not so rare as has been thought. As with many other supposedly rare conditions, increasing knowledge and more definite criteria of diagnosis have made physicians more alert to its occurrence. The case to be reported is the third case of complete heart block of congenital origin to be studied by serial sections through the conduction system. The two cases previously studied were reported by Yater [1] and by Yater, Lyon and McNabb.[2] The only other case of congenital heart block studied in a similar manner was one of partial (2:1) block reported by Wilson and Grant.[3]

The criteria which have been adopted for the diagnosis of congenital heart block are that (1) the auriculoventricular dissociation must be proved by graphic methods in a relatively young individual, (2) the bradycardia must have been noted at a fairly early age, and (3) there must not be a history of any infection which might cause heart block after birth, such as rheumatic fever, chorea, diphtheria or congenital syphilis. The occurrence of syncopal attacks at an early age is fairly good evidence of the existence of the heart block prior to the attacks. The presence of signs of congenital

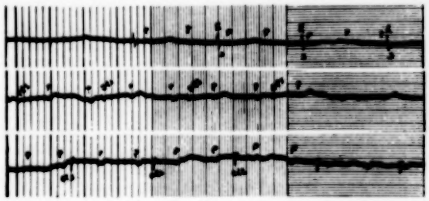

Fig. 1.—Complete heart block, the auricular rate being 100, the ventricular 50 per minute.

heart disease adds weight to the probability of the congenital origin; but it must not be forgotten that congenital heart lesions, such as a patent interventricular septum, may be the seat of acquired endomyocarditis. Signs of congenital heart disease are not necessary, however, to establish the diagnosis of congenital heart block, since in some instances of congenital cardiac defects signs are absent or not distinctive.

Using these criteria, one of us [1] in 1929 collected from the literature thirty-one cases of congenital heart block from among many which had been designated by the authors as such. Some of the others may well have been instances of congenital heart block, but the criteria were not all fulfilled. In 1933 Yater, Lyon and McNabb [2] in a similar review brought the number up to forty-four. A very probable case reported clinically by Mahaim [4] as observation XXXII in his book was overlooked. The patient was a girl, aged 16 years, whose bradycardia had been noted for four years and in whom physical signs suggestive of patent interventricular septum were elicited. The clinical case of Wood and Rogers [5] was also not included but probably should have been. The physical signs were those of mitral stenosis, and if this condition existed it may have been acquired in intra-uterine life, since it seems doubtful that it could have developed within the first three months of life when it was discovered. Since then, Blackford and McGehee [6] have reported the clinical case of a boy, aged 19 years, who was known to have had a slow pulse since birth; the physical signs were those of aortic regurgitation, which makes it difficult to decide whether the lesion was developmental or inflammatory. Ellis [7] mentioned two cases in a clinical study of heart block but did not report them in detail. The present case has previously been reported without complete anatomic study and without any histologic examination.[8]

Theoretically the cause of congenital heart block is some developmental defect of the bundle of His or

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From the Georgetown University School of Medicine and the Army Medical Museum.

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3. Wilson, J. G., and Grant, R. T.: A Case of Congenital Malformation of the Heart in an Infant Associated with Partial Heart Block, Heart **12**: 295 (March) 1926.

4. Mahaim, Ivan: Les maladies organiques du faisceau de His-Tawara, Paris, Masson & Cie, 1931, observation XXXII, p. 522.

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6. Blackford, L. M., and McGehee, H. M.: Congenital Heart Block: A Case with Other Cardiac Anomalies in a Student of Twenty-One Years, Am. Heart J. **9**: 96 (Oct.) 1933.

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8. Leaman, W. G.: Congenital Heart Disease Including Report of a Case of Congenital Heart Block with Autopsy Findings, M. Clin. North America **17**: 853-869 (Nov.) 1933.

prenatal endomyocarditis or syphilis involving the bundle. Thus far, only the first cause has been demonstrated in the six cases in which necropsy was performed.[9] In two of these cases histologic studies were not made. The accompanying table gives the salient data in these six cases.

In the cases reported only clinically the diagnosis, made either by the original authors or by Yater, Lyon and McNabb from the description, was patent interventricular septum in twenty-six. In six cases clinical evidence of a developmental defect other than the heart block or transient cyanosis was not found. Patent ductus arteriosus, pulmonary stenosis and aortopulmonary communication were diagnosed in some instances.

Salient Data in the Six Cases of Congenital Heart Block Studied at Necropsy

Case Author	Sex	Age at Death	Grade of A-V Block	Cardiac Malformations	Histologic Studies
1. Wilson and Grant, 1926 *	♀	14 mos.	Partial 2:1	Rudimentary interventricular septum; atresia of root of pulmonary artery; patent ductus arteriosus	No complete break in bundle, but fibers buried in fibrous tissue of rudimentary septum
2. Perotti, 1928 *	♀	3 days	Not determined	Absence of membranous portion of interventricular septum	None
3. Yater, 1929 [1]	♂	2 wks.	Complete	Complete transposition except ventricles	A-V node completely separated from bundle of His by central fibrous body
4. Abbott and Moffatt, 1931 *	♂	20 yrs.	Complete	Displaced left auricles; transposition of great arterial trunks; double mitral ostium; cor biatriatum triloculare; right conus stenosis; pulmonary arteriovenous aneurysm	None
5. Yater, Lyon and McNabb, 1933 *	♂	2 mos.	Complete	Large defect in upper middle portion of interventricular septum; absence of membranous portion of septum	A-V node in upper edge of defect, bundle of His in lower edge and completely separated from node
6. Yater, Leaman and Cornell, 1934 *	♂	18 hrs.	Complete	Absence of interauricular septum and membranous septum and minor anomalies	A-V node completely separated from bundle of His by anomalous central fibrous body

* Previously reported incompletely by Leaman.[8]

The ventricular rate per minute in the series varied from 20 to 90 and was fastest usually in the youngest patients. On the whole it was considerably faster than in most cases of heart block, since most of the patients were infants or children. The degree of auriculoventricular dissociation was complete in all but nine cases, and in these it was partial in six, alternating from complete to incomplete in two and not determined in one.

Symptoms of congestive heart failure were rarely observed. Cyanosis was present in twenty cases and to a marked degree in only six. Clubbing of the fingers was noted in only three cases. Cardiac hypertrophy ranged in degree from none to marked. Death occurred in nine cases and was sudden in most instances. The oldest patient died at the age of 20 years.

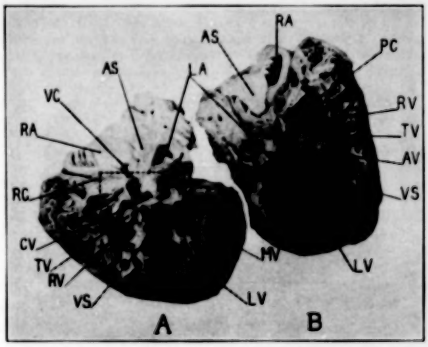

Fig. 2.—The interior of the heart, bisected in the sagittal plane; *A*, the posterior half, and *B*, the anterior half. The square drawn in *A* indicates the block of tissue removed for serial sectioning, an enlargement of which is shown in figure 3. *VS*, interventricular septum; *RV*, right ventricle; *TV*, tricuspid valve; *CV*, openings of coronary veins in auricle; *RC*, right coronary artery; *PA*, portion of common auricle corresponding to normal right auricle; *VC*, common orifice of vena cavae; *AS*, spur in roof of common auricle dividing it incompletely into right and left halves; *LA*, portion of common auricle corresponding to normal left auricle; *MV*, mitral valve; *LV*, left ventricle; *PC*, pulmonary conus; *AV*, aortic orifice under anterior leaflet of mitral valve.

REPORT OF CASE

An infant boy, aged 18 hours at the time of death, was the sixth child of a woman, aged 28. The father and mother and the other children were supposedly free of congenital defects. The mother's prenatal period was entirely uneventful, and the delivery was normal. The Wassermann test of the mother's blood was negative. On delivery, which occurred at 3 a. m., May 6, 1932, the child cried feebly and became intensely

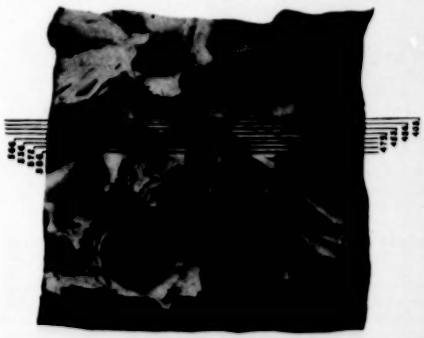

Fig. 3.—Block removed from posterior half of heart for serial sectioning from above downward. Horizontal lines with numbers indicate sites of sections shown in figure 4.

cyanotic. The respiration was very shallow and irregular, and the child was admitted to the Hospital of the Woman's Medical College of Pennsylvania three hours later.

On admission the infant was well developed and well nourished, and was apparently a full-term baby. No defects were noted. The length of the body was 51 cm., of the upper extremities 19 cm., and of the lower extremities 19.5 cm. The

9. Yater,[1] Yater, Lyon and McNabb,[2] Wilson and Grant,[3] Leaman,[8] Perrotti, D.: Blocco cardiaco congenito con vizio di conformazione del cuore, Boll. d. Soc. med.-chir. di Pavia **3**:1, 1928. Abbott and Moffatt, reported by Abbott, M. E., in Nelson Loose Leaf Medicine, section on Congenital Heart Disease, New York, Thomas Nelson & Sons **4**:207, 1932.

weight was 8 pounds (3,630 Gm.). There was intense cyanosis of the body generally and of the lips, ears and nails especially. Examination of the lungs showed impaired resonance at the left apex posteriorly. The breath sounds were harsh over both lung fields, and there were many crepitant râles throughout. Substernal inspiratory retraction was present. The left border of the heart was 7 cm. from the midsternal line in the fourth interspace. The right border was 2.5 cm. from the midsternal line in the fourth interspace. The first sound was obscured by a blowing systolic murmur, and the second sound was weak. The murmur was audible over the entire chest, but the center of intensity was in the second interspace at the left of the sternum. The rate of the heart beat was 40 per minute. There were no thrills. The liver and spleen were not palpable, and the rest of the examination was negative.

The child was taken to the heart station of the hospital, where electrocardiograms were made at intervals for the next few hours. All tracings showed complete heart block, with the ventricular rate of 50 and the auricular of 100, and low voltage (fig. 1). At 12:10 p. m. oxygen was administered, with slight improvement in the cyanosis. The electrocardiogram was not altered. Electrocardiograms were made at intervals of ten minutes while the following experiments were performed: At 12:15 $\frac{1}{1,000}$ grain (0.00006 Gm.) of atropine sulphate was given hypodermically. The ventricular rate increased to 60 per minute, the auricular rate remained at 100, and the block persisted; the cyanosis was not improved. At 12:30 the injection of atropine was repeated ($\frac{1}{1,000}$ grain). Very soon many premature ventricular contractions began to appear, and the child's color improved considerably. The block persisted, however, and after a short time the premature beats ceased, the ventricular rate returning to 50, the auricular rate remaining at 100.

The child was taken back to the ward and kept in an oxygen tent. A roentgenogram of the chest showed the heart shadow to be very large in all diameters. The child died at 8 o'clock on the evening of its birth.

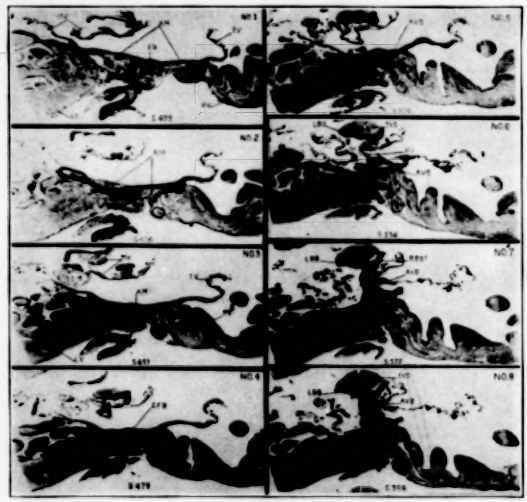

Fig. 4.—Series of photomicrographs of eight of the serial sections, showing main portion of conduction system, each reduced from a magnification of 12 diameters. The serial section number is shown on each. The interior of the heart is above in all sections. *AM*, auricular musculature; *MV*, mitral valve; *TV*, tricuspid valve; *FB*, fibrous rod dividing common auricular musculature; *LV*, left ventricle; *RV*, right ventricle; *CFB*, central fibrous body; *AVB*, auriculoventricular bundle (in this case only ventricular); *IVS*, interventricular septum; *VJ*, junction of mitral and tricuspid valves; *LBB*, left bundle branch; *RBB ?* probable right bundle branch.

NECROPSY

Except for intense cyanosis of the body generally, and of the lips, ears and nails especially, great congestion of the liver and compression of the lungs by the large and dilated heart, there was nothing of interest except the heart.

Macroscopic Appearance of the Heart.—The heart measured 8 cm. in its transverse diameter and lay in its usual position. The apex was opposite the seventh rib. The heart was cut in the sagittal plane by the pathologist into anterior and posterior halves. It will be described as it appeared after fixation.

Anterior Surface of the Heart: About two thirds of the ventricular portion was composed by the right ventricle and one third by the left. The right ventricle was roughly rhomboid in outline; the left ventricle was roughly triangular. The greatest dimension across the ventricles was 5.5 cm., and the distance from the origin of the pulmonary artery to the apex was 3.8 cm. The two ventricles were separated by the anterior descending branch of the left coronary artery. The aorta and the pulmonary artery were in fairly normal relationship, except that the aorta seemed to arise a little more to the right than usual. When both vessels were held open and looked down into, the pulmonary valve was seen to be to the left of the aortic valve. The aorta was large, and the pulmonary artery was about the same size, if not larger. The ductus arteriosus was not seen in the specimen, although it appeared that this vessel was cut just at its beginning. The left auricular appendage was long and narrow, crossing the front of the heart beneath the pulmonary artery and extending half way across the right ventricle; it was 3.3 cm. across the front of the heart. The right auricular appendage was larger but not nearly as long, lying just to the right of the root of the aorta, between it and the right extremity of the right ventricle.

Posterior Surface of the Heart: About three fifths of the posterior ventricular surface was made up of the left ventricle and two fifths of the right; both were roughly triangular in outline. A coronary artery passed down between the two; there was a large branch of the artery going across the left ventricle and several smaller branches going down across the right ventricle. The posterior surface of the combined auricles was roughly quadrilateral; there was only one apparent large opening for the venae cavae. What appeared to be two large openings for pulmonary veins lay to the left, opposite the caval opening. The bifurcation of the trachea was seen on the specimen just above the left auricle.

Internal Appearance of the Posterior Half (fig. 2*A*): The two ventricles were equal in size and were separated by the interventricular septum, which at its middle was 0.5 cm. in thickness and between its upper and lower extremities measured 2.4 cm. The membranous portion of the septum was absent. The walls of the ventricles were thick, and the musculature was greatly trabeculated; the thickness of each ventricle was about 1.1 cm. The cavity of the right ventricle in this half was 1.5 cm. in diameter and about 1 cm. deep. Most of the cavity of the right ventricle lay in this half of the heart, whereas most of the cavity of the left ventricle lay in the anterior half. There was no interauricular septum except for a muscular spur in the middle of the roof of the common auricle, which was triangular on cross section. This spur was somewhat cone shaped, with the apex pointing downward medial to the caval opening. It was probably a rudimentary septum secundum. There was a well formed tricuspid valve, with a papillary muscle in the bottom of the right ventricular cavity between the anterior and posterior leaflets. The mitral valve was well formed. The posterior leaflet as well as the posterior portion of the anterior leaflet was attached to a papillary muscle in the upper posterior wall of the ventricle. There was another but smaller papillary muscle lateral to this,

to which the chordae tendineae of the posterior leaflet were also attached. The median leaflet of the tricuspid valve and the posterior leaflet of the mitral valve were attached together to the upper edge of the interventricular septum. About 0.5 cm. above the mitral and tricuspid valves, in the posterior wall of the common auricle, were two small openings about 0.5 cm. apart, which were the orifices of the right and left coronary veins, there being no coronary sinus. The common opening of the venae cavae was about 0.5 cm. above the right auriculoventricular orifice and was about 0.5 cm. in diameter. The cavity of the left part of the auricle was apparently smaller than the right. The two openings already described as pulmonary vein openings were in its posterior wall.

Internal Appearance of the Anterior Half (fig. 2*B*): The cavity of the left ventricle was mainly in this half and was about 2.2 cm. deep, and about 1 cm. in diameter. Like the right ventricle, it was greatly trabeculated. The interventricular septum ascended in this half to fuse with the anterior wall of the left ventricle anterior to the aortic or anterior leaflet of the mitral valve. This leaflet was attached obliquely posterior to the aortic orifice in approximately its normal position. Part of the other leaflet of the mitral valve was attached laterally in its usual location. There was a small anterior papillary muscle just below this point. The right ventricle showed only a small portion of its cavity opposite the upper third of the interventricular septum. The rounded infundibulum was above this, roughly 1 cm. in all dimensions, from which the pulmonary artery emerged in its anterior and medial portion. The median cusp of the tricuspid valve and the anterior portion of the lateral leaflet of the valve were attached along the upper edge of the ascending interventricular septum, and there was an anterior papillary muscle with its chordae tendineae passing across above the upper part of the cavity of the right ventricle, between the latter and the infundibulum. Thus, there were two complete auriculoventricular orifices with practically normal valves except that they were joined together at the upper edge of the interventricular septum. The aortic and pulmonary valves appeared to be entirely normal. The orifices of the coronary arteries were in normal position.

Microscopic Examination of the Heart.—A block of tissue was excised from the posterior half of the heart, which included the lower middle portion of the posterior part of the auricles, the major portion of the mitral and tricuspid valves, the upper middle portion of the posterior part of the ventricles, and the upper posterior part of the interventricular septum (figs. 2 and 3). This block measured approximately 2 by 2 cm. on its upper and lateral edges. It should logically contain the major portion of the conduction system. The block was embedded in paraffin, and serial sections of 8 microns in thickness were made horizontally from above down to the number of 1,200. Every tenth section was mounted and stained with van Gieson's connective tissue stain. Later, many of the intervening sections between sections 400 and 600 were mounted and stained, since it was in this region that the main portion of the conduction system was found. The auricular musculature was found from above down to about section 440 to be incompletely divided by a vertical rod of fibrous tissue. A short distance below the orifices of the two coronary veins (from about section 330) the musculature on the right side of this fibrous rod seemed to be somewhat differentiated from that on the left and, as subsequent sections demonstrated, was certainly the counterpart of the auriculoventricular node (1, 2 and 3, fig. 4). From about section 440 to section 490 this musculature became gradually surrounded by fibrous tissue, apparently the counterpart of the central fibrous body, and finally it disappeared except for a few fibers at the auriculoventricular junction, where there was practically no muscular communication between auricles and ventricles (4, fig. 4). Farther down, at about section 500, there began to appear a small bundle of differentiated muscle fibers in the right extremity of the central fibrous body (5, fig. 4). This gradually grew larger, attaining its maximum at about section 535 (6, fig. 4, and fig. 5). This bundle was cut somewhat obliquely and ran along the upper edge of the defective interventricular septum from behind forward, at first downward and then more or less horizontally. The fibers were definitely muscle fibers, but they were stained lighter than the myocardial fibers, the cross striations were less distinct, and the nuclei were smaller. This bundle, definitely the auriculoventricular bundle of His, gave rise to a narrow left branch, which extended along the left surface of the interventricular septum as far forward as the septum existed in the block (7 and 8, fig. 4, and fig. 6). The endocardium superficial to the branch was thick, and subjacent to the branch was some fibrous connective tissue, so that the branch was well demarcated. A clear-cut right bundle branch could not be found, although there were certain suggestive groups of fibers. This bundle is very difficult to locate in normal hearts of infants. The left branch was easily followed down the left edge of the septum. The fibers assumed the characteristics of Purkinje fibers, and the bundle became broader and went down across the ventricle in one of the trabeculae to the lateral wall, where it spread out into several trabeculae.

Principal Abnormalities.—The main defect of the heart was the almost complete absence of the interauricular septum and of the membranous portion of the interventricular septum. The coronary veins emptied separately into the middle of the posterior wall of the common auricle. The venae cavae had a common opening. The mitral and tricuspid valves were completely formed and were attached medially to the upper edge of the interventricular septum. The aorta and the pulmonary artery had approximately normal relationship.

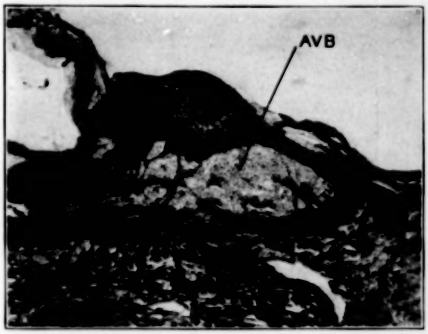

Fig. 5.—Enlargement of section 536, showing cross section of bundle of His, *AVB*; reduced from a photomicrograph with a magnification of 200 diameters.

Microscopically, it was observed by means of serial sections that there was practically complete absence of the conduction bundle between the common auricle and the ventricles. The central fibrous body had almost completely severed the auriculoventricular node from the auriculoventricular bundle. The bundle of His and the left bundle branch were well developed, but a definite right bundle branch could not be found, although there was a suggestion of one.

COMMENT

The heart in this case is an example of a three-chambered heart with one auricle and two ventricles, cor triloculare biventriculosum. Other cases of heart block of congenital origin associated with this anomaly have not been reported. The auriculoventricular dissociation was caused by an anatomic separation of the muscular conduction bridge between the auricular and the ventricular portions of the heart. This anatomic separation was of developmental and not of inflammatory origin. In the great majority of cases of defects of all kinds between the two sides of the heart the small specialized muscular bundle between the auricles and the ventricles is preserved, although its course may be somewhat abnormal. The bundle passes downward and forward from the node of Tawara, which lies on the right side of the interauricular septum just anterior

to the coronary sinus. Whether the greater part of the auricular septum, the greater part of the ventricular septum or the greater part of both septums are absent, the bundle enters the ventricles uninterruptedly and divides into branches for these chambers. Its location is always along the upper edge of the muscular portion of the interventricular septum, whether this is normal, slightly defective or only rudimentary, as demonstrated by Mönckeberg. In a case anatomically similar in most respects to our case (case of Bostroem-Mönckeberg) the auriculoventricular bundle was unbroken.

Mönckeberg[10] demonstrated a similar preservation of the conduction pathway in the nearest related anomaly, persistent ostium primum, in which there is a large defect in the lower part of the interauricular septum. Morison[11] found a rather anomalous course of the conduction system in a heart with the same defect, but apparently conduction was essentially normal. Yater, Barrier and McNabb[12] studied the heart of a woman, aged 59, at the time of death, who had had Adams-Stokes attacks for nearly three years and in whose

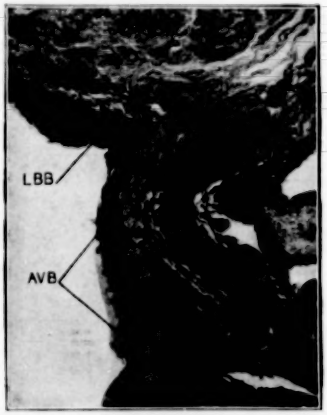

Fig. 6.—Enlargement of section 586, showing bundle of His, *AVB*, and left bundle branch, *LBB*; reduced from a photomicrograph with a magnification of 200 diameters.

case electrocardiographic records showed progressively increasing degrees of heart block during this time. The heart had a persistent ostium primum but the course of the conduction system was essentially normal. The acquired heart block was due to fibrosis, apparently from strain, of the upper edge of the interventricular septum, where the bundle of His was located.

The reason for the almost constant preservation of the muscular connection between the auricles and ventricles probably lies in the fact that the special bundle appears in the fifth week of fetal life,[13] whereas the membranous separations between the auricles and the ventricles and between the ventricles take form between the seventh and the tenth week. The bundle is preserved between the posterior endocardial cushion and the posterior portion of the annulus fibrosis. In our case these structures fused, and muscular communication between auricles and ventricles was destroyed in this region and in all other portions of the auriculoventricular junction where normally no communication is preserved.

10. Mönckeberg, J. G.: Handbuch der speziellen pathologischen Anatomie und Histologie, Berlin, Julius Springer, Herz und Gefässe **2**: 31 and 40, 1924.

11. Morison, A.: Auriculoventricular Node in a Malformed Heart: Its Nature, Connections and Distribution, J. Anat. & Phys. **47**: 459, 1913.

12. Yater, W. M.; Barrier, C. W., and McNabb, P. E.: Acquired Heart Block with Adams-Stokes Attacks Dependent upon a Congenital Anomaly (Persistent Ostium Primum): Report of a Case with Detailed Histopathologic Study, Ann. Int. Med., to be published.

13. Mall, F. P.: On the Development of the Human Heart, Am. J. Anat. **13**: 249 (July) 1912. Tandler, J.: Anatomie des Herzens, Jena, Gustav Fischer, 1913, p. 212.

SUMMARY

Only six cases of congenital heart block including the one here reported have been studied at necropsy. In all six, congenital defects in the septum between the right and left sides of the heart were present. In four of these cases, studies of the conduction system by serial sections were made. One was a case of partial (2:1) heart block.[5] The present case is the third case of complete heart block of congenital origin to be studied histologically. The interauricular septum was almost completely lacking, as was also most of the membranous portion of the interventricular septum. There was practically complete separation of the auricles and ventricles by the central fibrous body in the region where the specialized muscle bundle normally bridges the auriculoventricular groove. The bundle of His was well formed but was disconnected from the auriculoventricular node in this region.

THE ARTIFICIAL TRANSMISSION OF MALARIA AMONG INTRAVENOUS DIACETYLMORPHINE ADDICTS

A PRELIMINARY NOTE ON THE USE OF ATABRINE IN MALARIA

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It is astonishing that until recently the relationship of malaria to drug addiction has been either not recognized or not fully appreciated. In 1929, Biggam[1] reported ten cases of malignant malaria associated with the administration of diacetylmorphine (heroin) intravenously. In 1930, Biggam and Arafa[2] reported on a series of more than 100 cases of artificially induced malaria. All their patients were inhabitants of Cairo, Egypt. To the best of our knowledge, the first contribution on this subject in this country was made by Eaton and Feinberg[3] in 1933. These authors reported two cases of malaria in intravenous diacetylmorphine addicts under their observation at the Cook County Hospital, Chicago.

During the past six months thirty-nine addicts admitted to Bellevue Hospital were found to be suffering from malaria. Ten of these patients were observed in the Fourth Medical Division and formed the basis of our study.

REPORT OF CASES

Case 1.—W. W., a man, aged 35, a sailor, admitted to the hospital, Oct. 13, 1933, complained of severe intermittent chills

From the services of Dr. Harlow Brooks and Dr. Herman O. Mosenthal, Fourth Medical Division, Dr. Charles H. Nammack, director.

1. Biggam, A. G.: Tr. Roy. Soc. Trop. Med. & Hyg. **23**: 147 (Aug.) 1929.

2. Biggam, A. G., and Arafa, M. A.: Tr. Roy. Soc. Trop. Med. & Hyg. **23**: 391 (April) 1930.

3. Eaton, L. M., and Feinberg, S. M.: Am. J. M. Sc. **186**: 679 (Nov.) 1933.

and fever of four weeks' duration and progressive swelling of the lower extremities for the past two weeks. He had been taking diacetylmorphine intravenously for the past five years and had been in the habit of sharing his hypodermic outfit, known as "the works," with other addicts. He had been residing in New York City for the past year. Five years before, while in Africa, he contracted malaria, for which he was treated and apparently cured. He remained perfectly well until the onset of the present illness.

On physical examination he appeared well nourished. There was moderate edema and pallor of the face. Moist râles were present at the bases of both lungs. The heart was normal. The blood pressure was 124 systolic and 50 diastolic. The liver and spleen were enlarged, and their edges were felt about four fingerbreadths below their respective margins. There was marked edema of the right arm and both legs. Both antecubital fossae and the upper halves of the flexor surfaces of the forearms showed numerous scars of previous puncture marks surrounded by dark greenish pigmentation along the course of the veins. Some of the veins appeared thickened and cordlike. The reflexes were normal. The temperature curve, showing abrupt rises every seventy-two hours, suggested the diagnosis of quartan malaria. This was confirmed by study of the blood smear, which showed the presence of both rings and adult forms of the quartan plasmodium. The urine showed a moderate trace of albumin and a few casts. The red blood count showed 3,200,000 cells, with 60 per cent hemoglobin. The white blood count was 7,000, with 74 per cent polymorphonuclears and 24 per cent lymphocytes. The blood chemistry showed a nonprotein nitrogen of 32 mg. and a sugar of 84 mg. per hundred cubic centimeters.

October 25, following four paroxysms of chills and fever, the patient was put on quinine therapy and made an uneventful recovery.

The relationship of the malaria to the intravenous administration of diacetylmorphine in this case is suggestive but not clear cut. It is impossible to say whether the original attack was transmitted by a mosquito or was artificially induced. It is also hard to decide whether the present illness is a recurrence of the previous attack of malaria or newly acquired in association with the diacetylmorphine habit.

CASE 2.—G. M., a man, aged 46, admitted to the hospital, Nov. 4, 1933, complained of headache, general malaise, stiffness of the neck, and chills and fever of three weeks' duration. The chills occurred every third day. He had been taking diacetylmorphine intravenously for the past seven years, sharing a hypodermic outfit with other addicts. He had always lived in New York City and had never visited any malarial districts. There was nothing relevant in the past history.

On examination, he appeared cachectic and pale. His neck was stiff and motion was limited in every direction. There were, however, no Brudzinski or Kernig signs. The reflexes were all normal. The heart was normal. The blood pressure was 70 systolic and 40 diastolic. There were diffuse coarse râles throughout the lungs. The spleen was just palpable. Both forearms showed typical puncture marks and scars with pigmentation along the course of the thickened veins. There was moderate edema of both legs. The temperature was 102 F. on admission and rose to 105 F. within thirty-six hours. The white blood count was 20,000, with 85 per cent polymorphonuclears. The red blood count was 2,230,000, with 65 per cent hemoglobin. The nonprotein nitrogen was 47 mg. per hundred cubic centimeters. The spinal fluid was clear and showed no increase in globulin, normal sugar content, and 4 cells. Examination of the urine was entirely negative. The blood smear showed numerous rings and adult forms of the quartan plasmodium. The blood culture was negative.

November 9, he became irrational and delirious. The same day a diffuse purpuric erruption over both legs was observed. Quinine therapy was instituted at this time.

November 11, his general condition was distinctly worse. On examination, he was comatose and jaundiced, had generalized spasticity of all the muscles, and showed signs of pneumonia in both lungs. Another spinal tap performed yielded a normal fluid. He died, November 13.

In this case, it seems to us, there can be little doubt that the malaria was transmitted accidentally in connection with the intravenous administration of diacetylmorphine. The marked leukocytosis was due either to the severe malarial infection or to the pneumonia. It is somewhat difficult to explain the marked muscular spasticity and neck rigidity, but it is not unlikely that these signs of meningeal irritation were features of a severe toxemia. His jaundice likewise was probably a toxic manifestation.

CASE 3.—R. C., a man, aged 38, a sailor, was admitted to the hospital, Jan. 1, 1934, in a comatose state. The history obtained after his recovery was as follows:

He was born in Puerto Rico but had never had malaria before and, in fact, had never been sick before. He became a snuffer of diacetylmorphine in September 1933. Early in December he commenced injecting solutions of diacetylmorphine by means of an eye dropper into puncture wounds made with a safety pin. He received his first intravenous injection of diacetylmorphine on December 29. This was administered by another addict employing an eye dropper attached to a needle. December 31, he began to have headache, chills and fever. Jan. 1, 1934, he was admitted to the hospital in a deep stupor.

Physical examination on the day of admission showed the patient to be in deep coma. There was extensive herpes labialis. The heart was normal. The blood pressure was 114 systolic and 78 diastolic. The lungs were clear. The spleen was enlarged to four fingerbreadths below the left costal border. Both arms and legs showed many puncture marks, and one of these was directly over a vein in the left antecubital fossa. There was slight rigidity of the neck but negative Brudzinski and Kernig signs. All the deep reflexes were exaggerated. The pupils were equal and reacted to light. Examination of the fundi showed moderate hyperemia of the finer vessels of the disks, giving them a marked rosy brilliant color. The larger vessels showed no changes and there were no hemorrhages, exudate or edema. The temperature was 104 F., the pulse 120, and respirations 22.

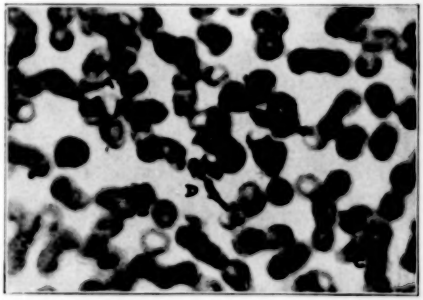

Fig. 1.—Estivo-autumnal parasites. Ring forms are seen at *A*, *B* and *C*, and gametocytes are seen at *D*.

The white blood count was 32,000 with 73 per cent polymorphonuclears and 23 per cent lymphocytes. Lumbar puncture yielded 20 cc. of clear fluid under increased pressure. The spinal fluid on examination showed 252 cells, mostly mononuclears, globulin 2+, albumin 2+, and sugar 3+. Urinanalysis showed albumin 2+, an occasional hyaline cast, and red and white blood cell. A study of the blood smear showed an overwhelming number of malarial plasmodia. Most of these were ring forms, but several gametocytes were also found (fig. 1). This was definitely a case of the pernicious form of estivo-autumnal malaria.

Shortly after admission, 40 grains (2.6 Gm.) of quinine sulphate in suspension was administered by stomach tube.

January 2, the patient's condition remained unchanged with persistence of deep stupor and high temperature. On this date 25 grains (1.6 Gm.) of quinine dihydrochloride was administered intravenously in divided doses.

January 3, the patient was still in coma with no improvement in the general condition. Ten grains (0.6 Gm.) of quinine dihydrochloride was again given intravenously. On the afternoon of the same day, when he appeared to be going rapidly downhill, the intravenous administration of atabrine was resorted to. The first dose was 150 mg. and was given at 3 p. m. Four hours later he was given 200 mg. of the drug. About midnight he was given another dose of 100 mg.

January 4, in the early morning hours the patient began to show definite improvement. His temperature dropped to 100 F., and he had lucid intervals. One hundred milligrams of atabrine was again given intravenously. In the afternoon he was quite clear mentally, and his temperature was 99 F. The use of atabrine by mouth was begun on this date, the dose being 1½ grains (0.1 Gm.) three times a day, and it was continued for the next five days.

January 5, the patient's general condition was very satisfactory. He was quite clear mentally and his temperature was normal. The spleen was much smaller and softer. A spinal tap yielded 15 cc. of clear fluid under normal pressure. On examination, this fluid was practically normal. The white blood count was now 8,400 with 65 per cent polymorphonuclears and 31 per cent lymphocytes. The red blood count was 3,800,000 with 70 per cent hemoglobin. No malarial parasites were found in the blood smear. The nonprotein nitrogen was 45. Both the blood and spinal fluid Wassermann tests were negative.

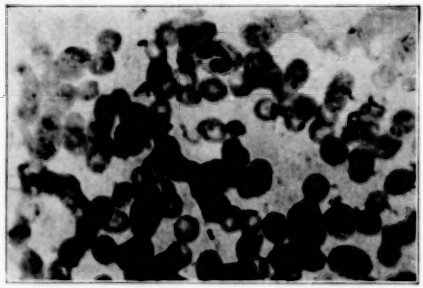

Fig. 2.—Numerous estivo-autumnal ring forms are seen at *A*, *B* and *C*.

From this time on, the patient's condition remained satisfactory. Repeated blood smears failed to show the schizonts, but gametocytes were repeatedly found. In order to eradicate the gametocytes, we proposed to put him on plasmochin, as recommended by many workers,[4] but January 28 the patient insisted on obtaining his discharge.

This case was cited in detail in order to illustrate some interesting and important points. This was a typical example of cerebral malaria and was by far the most severe and malignant form of the disease which did not end in death. It seems to us that there can be little doubt that in this case the malarial infection was artificially induced, Dec. 29, 1933, by an unclean hypodermic outfit. So far as we know, this is the first record in this country of the intravenous use of atabrine for malaria. It is of course difficult to decide whether the atabrine alone or its use in combination with the quinine was responsible for the recovery. Certainly there was no improvement in the clinical picture before the atabrine was administered. This drug may, therefore, be regarded at least as a contributory factor toward the recovery of this patient.

4. Barber, M. A., and Komp, W. H. W.: Ann. Rep. M. Dept., United Fruit Company **16**: 54, 1927. Barber, M. A.; Komp, W. H. W., and Newman, B. M.: Pub. Health Rep. **44**: 1409 (June 14) 1929. Macphail, N. P.: Ann. Rep. M. Dept., United Fruit Company **18**: 13, 1929. Manson-Bahr, Philip: Proc. Roy. Soc. Med., Sect. Trop. Dis. **20**: 919 (April) 1927; Lancet **2**: 496 (Sept. 8) 1928.

CASE 4.—J. C., a man, aged 20, admitted to the hospital Jan. 9, 1934, complained of progressive swelling of the face, hands, genitalia and legs of three weeks' duration. He also had marked nocturia. For the past two months the patient had had episodes of chilly sensation followed by fever, occurring every third day. For the past sixteen months he had been taking diacetylmorphine intravenously, often sharing the hypodermic outfit with other addicts.

He was born in Maine but spent his childhood in North Carolina, where, at the age of 8 years, he claimed to have had an attack of malaria. He had lived in New York City for the past three years and had been free from any febrile attack from his childhood to the present illness.

Physical examination showed him to have a pasty appearance, with puffiness of the face and eyelids. He also had marked edema of all the extremities and evidence of ascites. There were the typical puncture marks over the forearms. The heart showed no abnormal signs. The blood pressure was 130 systolic and 78 diastolic. The lungs had moist râles at both bases. The reflexes were normal. The eyegrounds showed no hemorrhages or other abnormal manifestations. The temperature was normal on admission but later presented a typical quartan curve.

The white blood count was 4,800, with 56 per cent polymorphonuclears and 44 per cent lymphocytes. The red blood count was 3,200,000, with 60 per cent hemoglobin. On the blood smear there were numerous adult and ring forms of the malarial parasite. The urine examination on several occasions showed a moderate amount of albumin, a few granular casts and an occasional red and white blood cell but failed to show the presence of doubly refractile lipoid bodies. The nonprotein nitrogen was 36, cholesterol 130, sugar 100, uric acid 3.7, and creatinine 1.7 mg. per hundred cubic centimeters of blood. The serum albumin was 2.8 and the globulin was 1.9 per cent.

January 14, after the diagnosis of quartan malaria was definitely established, the patient was started on atabrine therapy. He received 1½ grains three times a day for a period of ten days. On the fourth day of treatment he showed marked improvement. His temperature was normal and the edema had practically disappeared. The spleen was now palpable. No malarial parasites were now found. The urine was negative except for an occasional finely granular cast. His condition remained satisfactory and he was discharged, January 26.

It seems to us that the patient's vague history of malaria in childhood is not in any way related to his present illness, as there was an interval of well being of more than twelve years. The relationship of his malaria to the injections of diacetylmorphine is therefore quite probable. In this connection it is of importance to note that a diacetylmorphine addict in another service with whom he shared injections was also suffering from quartan malaria at the same time. This case also illustrates that nephritis is an important complication of malaria. The prompt response of this patient to atabrine was indeed gratifying.

CASE 5.—A. C., a man, aged 34, admitted to the hospital, Jan. 10, 1934, complained that for the past week he had had attacks of chills and fever, which occurred from one to three times daily. For the past four days he had noticed marked swelling of the face, abdomen and extremities. He also had nocturia.

He had been a drug addict for the past fifteen years and for the past twelve years had been in the habit of taking diacetylmorphine intravenously in the usual manner. Since 1922 he had been a resident of New York City, but prior to that time he had traveled in the southern states, where he contracted malaria. When he came to New York he was still suffering from the active phase of the disease and was treated intensively with quinine and apparently was cured within a

short time. From that time on, he had been free from all symptoms and signs referable to malaria up to the present illness, which apparently developed after he shared injections with an addict who at that time had similar symptoms. After the onset of the malarial infection, the patient shared injections with his roommate, who also developed symptoms suggestive of malaria.

On examination, the patient appeared acutely ill, with pronounced swelling of the face, especially about the eyelids. The heart showed no abnormal signs. The blood pressure was 128 systolic and 70 diastolic. There were moist râles at the bases of both lungs. There was marked edema of the torso, scrotum and lower extremities. There was also evidence of ascites. On the forearms there were the typical puncture marks with marked thickening of the veins. He was clear mentally, and his reflexes were normal. Ophthalmoscopic examination showed hemorrhages in both fundi. Most of the hemorrhages were flame shaped, while one was oval with a pale center. The temperature on admission was 105 F. and dropped to normal the next day. Subsequently the patient had an irregular fever, ranging between 101 and 105 F.

A study of the blood smear showed many plasmodia. Most of these were ring forms, but there were also a few gametocytes. The diagnosis was estivo-autumnal malaria. The urine examination on several occasions showed a heavy trace of albumin, no casts and an occasional white blood cell, and no doubly refractile lipoids. The phenolsulphonphthalein excretion was 45 per cent in two hours. The nonprotein nitrogen was 27 and the sugar was 110 mg. per hundred cubic centimeters. The serum albumin was 2.4 and the globulin, 2.2 per cent. The white blood count was 3,200 with 71 per cent polymorphonuclears and 29 per cent lymphocytes. The red blood count was 2,850,000, with 55 per cent hemoglobin.

On the fifth day of his stay in the hospital the patient was put on atabrine therapy, receiving 1½ grains three times a day. This was continued for ten days. The patient responded promptly to the treatment and the clinical improvement was rapid. On the fourth day of treatment no plasmodia could be found in the blood smear, and examination of the urine was entirely negative. He was discharged from the hospital, January 26, in excellent condition.

In this case the relationship of the malaria to the drug addiction is somewhat uncertain. However, the long interval of well being that followed his first attack of malaria and the details of his present illness suggest very strongly that the recent attack of this disease was conveyed by intravenous injections of diacetylmorphine. This case also presents some interesting clinical features. There was very pronounced involvement of the kidneys, as indicated by the albuminuria and marked generalized edema. The eyeground changes were unusually interesting. The response to atabrine was quite prompt.

CASE 6.—F. W., a man, aged 26, admitted to the hospital, Jan. 28, 1934, complained of chills and fever for the past three weeks. The chills occurred at irregular intervals. He was born in Florida, where at the age of 15 he had an attack of malaria, which was cured with quinine. He had had asthma for many years. He had been living in New York City for the past three years, and for the past two years he had been taking diacetylmorphine intravenously.

On examination, he appeared thin, pale and pasty. Apathy was quite pronounced. There was herpes labialis. There were marked generalized twitchings. The lungs presented the usual signs of chronic bronchitis. The heart presented no abnormal signs. The blood pressure was 76 systolic and 44 diastolic. The spleen was not felt. On his forearms were the typical puncture marks along the course of the veins. There was moderate rigidity of the neck but there were no Kernig or Brudzinski signs. The knee jerks were active. The fundi showed increased tortuosity of the vessels with moderate congestion of the disk capillaries and a small flame-shaped hemorrhage on the left side. The temperature on admission was 100.5 F. but mounted to 106 F. the next day. It remained irregularly high, ranging between 102 and 105 F. until specific therapy was instituted.

Examination of the urine was entirely negative. The blood chemistry showed a nonprotein nitrogen of 35 and a sugar of 125 mg. per hundred cubic centimeters. The white blood count was 6,800, with 78 per cent polymorphonuclears and 22 per cent lymphocytes. The red blood count was 3,600,000, with 60 per cent hemoglobin. The blood smear showed numerous malarial plasmodia, most of which were ring forms and a few crescents. The diagnosis of estivo-autumnal malaria was definitely established. The signs of moderate meningeal irritation and the apathy suggested early or impending cerebral involvement. This impression was confirmed by analysis of the spinal fluid, which showed 25 cells, mononuclears, a slight increase in albumin and globulin, a normal sugar, and a negative Wassermann reaction.

January 31, three days after admission, the patient was started on atabrine, receiving 4½ grains (0.3 Gm.) three times a day. February 1 there was decided improvement. The temperature was normal and the apathy was much less pronounced. On this day he received 3 grains (0.2 Gm.) of atabrine three times. A yellowish tinge of the sclerae and of the skin was noted the same day. This was regarded as an atabrine manifestation. From this time on, the clinical improvement was progressive. The temperature remained normal and he was quite clear mentally. The yellowish discoloration of the skin, however, persisted for several days. The atabrine was continued in doses of 1½ grains three times a day until February 6.

February 7 the temperature suddenly rose to 104 F. Examination on this day showed early signs of pneumonia. The blood smear was negative for malaria plasmodia. Within a few days there were frank signs of consolidation of the left lower lobe, associated with marked toxemia. A typing of the sputum showed pneumococcus type 30. The blood culture was negative. The blood count was 5,300, with 88 per cent polymorphonuclears and 12 per cent lymphocytes. He died, February 12.

In view of the fact that this patient had been entirely well for eleven years following his previous attack of malaria, it is fair to assume, it seems to us, that his recent attack of this disease was conveyed by a contaminated hypodermic outfit. There was definite evidence in this case of early cerebral involvement. The prompt response to atabrine was indeed striking, as evidenced by the sudden drop in temperature and the marked improvement in the mental picture. The other interesting features in this case were the ocular changes and the development of pneumonia. The pulmonary complication was undoubtedly the cause of death.

CASE 7.—J. D., a man, aged 35, was admitted to the hospital, Feb. 9, 1934, in a state of deep coma. The history was obtained from his brother, who stated that the patient had collapsed suddenly shortly before admission. He was known to have been an intravenous drug addict for a number of years. He had always lived in New York City and had never had malaria before.

Physical examination showed the patient to be in deep coma. The temperature was 105 F. The heart was somewhat enlarged to the left, and the sounds were of poor muscular quality. The veins of the neck were dilated. The blood pressure was 138 systolic and 74 diastolic. The lungs were clear. The spleen could not be felt. On the thighs were shallow scars of old puncture marks. In the antecubital fossae overlying the veins were many puncture marks, surrounded by bluish brown pigmentation. There was slight rigidity of the neck. There was moderate spasticity of the extremities and hyperreflexia. The examination of the fundi revealed marked engorgement of the fine vessels of the disks, giving them a brilliant red appearance. The disk edges were somewhat indistinct. There were no hemorrhages or edema. The larger retinal vessels appeared normal.

The urine showed a heavy trace of albumin, many hyaline and granular casts, and a few white and red blood cells. The white blood count was 16,000 with 74 per cent polymorphonuclears and 26 per cent lymphocytes. The red blood count was 4,800,000 with 70 per cent hemoglobin. The blood smear showed numerous malarial ring forms (fig. 2) and a few gametocytes. The blood culture was negative. The spinal

fluid came out under increased pressure, was clear, contained 50 cells, and showed a 2+ albumin and globulin, and a normal sugar.

The diagnosis of estivo-autumnal malaria, cerebral form, was definitely established. The patient was promptly put on atabrine therapy, the first dose being 200 mg. intravenously. The same dose was repeated three hours later. Four hours after admission, signs of pulmonary edema and marked circulatory collapse developed. The pulse was very rapid and thready. The blood pressure dropped to 80 systolic and 60 diastolic. The skin was cold and clammy. Active stimulation was resorted to, but the patient died several hours later.

There can be little doubt that in this case the malarial infection was transmitted by means of a contaminated hypodermic outfit. The most striking clinical feature in this case was the severe cerebral involvement. The eyeground changes were quite characteristic. There was also evidence of renal involvement. Death was obviously due to complete circulatory collapse.

CASE 8.—H. M., a man, aged 22, was admitted to the hospital, Feb. 9, 1934, in a stuporous state. A complete history could not be obtained. He was known to have been an intravenous drug addict for the past seven years. The present illness began two days before with marked drowsiness, which progressed rapidly to complete stupor.

On examination, the patient was in a state of coma vigil. The respirations were shallow, but the lungs were clear. Except for a short systolic murmur at the apex, the heart was normal. The blood pressure was 130 systolic and 80 diastolic. The spleen was palpable. There were numerous hypodermic puncture marks along the course of the veins of both forearms. All the reflexes were exaggerated. There was a positive bilateral Babinski and Oppenheim reflex. The fundi showed marked engorgement of the small vessels of the disks, giving them a brilliant red appearance. The disk edges were indistinct. There was no edema or changes in the larger retinal vessels. There were a few scattered flame-shaped hemorrhages in the left eye. The temperature was 102 on admission, and within twelve hours mounted to 108.6 F. There was a proportionate rise in pulse from 90 to 160. The respirations were 36.

The urine showed a slight trace of albumin and bile. The white blood count was 10,500, with 68 per cent polymorphonuclears, 26 per cent lymphocytes and 6 per cent transitionals. The red blood count was 2,800,000, with 70 per cent hemoglobin. The nonprotein nitrogen was 40 mg. per hundred cubic centimeters of blood. The spinal fluid was clear, contained 15 cells, and had a 2+ albumin and globulin, and a normal sugar. The blood culture was negative. A study of the blood smear showed a small number of malarial parasites, ring forms and gametocytes.

As this was obviously a case of the cerebral form of estivo-autumnal malaria, the patient was immediately given 200 mg. of atabrine intravenously. During the following twenty-four hours, he received 700 mg. of the drug intravenously in divided doses. The patient, however, failed to respond to the intensive therapy. His condition became rapidly worse. He had several convulsive seizures, with projectile vomiting, and a marked hyperpyrexia developed. He died approximately twenty-four hours after admission.

In this case the malaria was very likely related to the intravenous drug addiction. Of course this relationship could not be established with absolute certainty because of the inadequate history. This case was very interesting from a number of angles. It was the first instance of cerebral malaria in which convulsions and hyperpyrexia were outstanding symptoms. It is also to be noted that, in spite of severe clinical manifestations, very few parasites were found in the peripheral blood. Finally, the eyegrounds presented typical changes.

We had two other intravenous diacetylmorphine addicts who were admitted to the hospital in a state of deep coma and died shortly after admission. The diagnosis of malaria in these cases was not made clinically but was established at necropsy.

COMMENT

The artificial transmission of malaria is now a recognized fact. Many persons have been inoculated with the disease for therapeutic purposes, especially in the treatment of dementia paralytica. Wenyon[5] and Netter[6] report instances of malaria transmitted by nonsterile injection of arsphenamine. Accidental transmission of the disease in blood transfusions has been noted by Korabelnikoff[7] and Decourt.[8] According to Bass,[9] malaria results almost every time when injected intravenously, less frequently when it is injected intramuscularly or subcutaneously. It is not surprising, therefore, to find this infection disseminated among intravenous drug addicts who share injections by means of a nonsterile hypodermic outfit.

In our series, there can be little doubt that malaria was artificially induced in cases 2, 3 and 7. In case 4, the relationship between the malaria and the injections of diacetylmorphine is very probable. In cases 1, 5 and 6, the relationship between the drug addiction and the present attack of malaria is somewhat less certain. Of course, no definite conclusions can be drawn in cases 8, 9 and 10, because of the inadequate histories.

There is therefore sufficient evidence to show that a number of intravenous diacetylmorphine addicts have accidentally acquired malaria while sharing injections with other addicts who were afflicted with this disease. Furthermore, the number of such cases is apparently on the increase. In this connection, one must also bear in mind the fact that anopheles mosquitoes are known to breed even in the northern section of the United States. The possible dissemination of malaria in the northern parts of the country must therefore be seriously considered. This extraordinary manner of malarial transmission may thus assume importance as a public health problem.

In this connection, it may be of interest to describe briefly the method of group injection practiced by the drug addicts. The drug used is exclusively diacetylmorphine and is invariably administered intravenously. The addicts usually congregate in groups. The drug is put into a tablespoon and tap water is added. The contents are then brought to a boiling point by using a candle or match flame. A small piece of cotton is put into the tablespoon and the solution is drawn up through the cotton into a large medicine dropper. Strips of paper are wrapped around the tip of the dropper in order to fit the needle. After a tourniquet is applied to the arm, the needle is inserted into one of the antecubital veins. When they observe the flow of blood into the eye dropper, the tourniquet is released and the solution is injected into the vein. The hypodermic outfit is never sterilized and is passed around from one addict to another.

From a clinical point of view these cases were extremely interesting. The severity of the malarial infection in most of the patients was rather striking. In only one instance was the disease comparatively mild. The mortality was unusually high, six of the ten patients having died.

5. Wenyon, C. M.: Protozoology: A Manual for Medical Men, Veterinarians and Zoologists, New York, William Wood & Co., 1926, p. 955; cited by Eaton and Feinberg.[3]
6. Netter, L.: Bull. Soc. path. exot. **22**: 318, 1929; cited by Eaton and Feinberg.[3]
7. Korabelnikoff, L.: Zentralbl. f. Chir. **54**: 1218 (May 14) 1927; cited by Eaton and Feinberg.[3]
8. Decourt, P.: Rev. de méd. et d'hyg. trop. **23**: 32 (Jan.-Feb.) 1931; cited by Eaton and Feinberg.[3]
9. Bass, C. C.: Nelson's Loose-Leaf Medicine **2**: 241, 1932.

As to the causative plasmodium, three of the cases were of the quartan variety, while the remaining seven were estivo-autumnal in type.

The cases with cerebral manifestations were by far the most serious ones. The term "cerebral malaria" was applied to this group. Six of our cases were of this type. They were all caused by the estivo-autumnal parasite. All but one of our patients with cerebral malaria were in a comatose state on admission. The exception was a patient who showed marked apathy but who was not in a stupor. Five of the six patients died. However, one of the deaths was due to pneumonia and not to the moderate degree of cerebral involvement, which was apparently controlled with antimalarial therapy. This was confirmed at necropsy. The seriousness of the cerebral form of malaria is therefore quite apparent.

The occurrence of nephritis as a complication of malaria is a matter of common observation. Indeed, there have been many contributions on the subject. Particularly noteworthy are the recent reports by Giglioli,[10] Lorando[11] and Goldie.[12] According to Goldie, nephritis in malaria may be either hydremic in type, with edema as the dominant clinical feature, or azotemic, with nitrogen retention as the cardinal symptom. He believes that renal complications occur most frequently in the quartan form. Malarial nephritis, of course, is not to be confused with the albuminuria often observed during the febrile attacks of the disease.

In our series there was definite clinical evidence of nephritis in cases 1, 4, 5 and 7. These patients showed in the urine moderate or marked amounts of albumin, casts and red and white blood cells. In cases 1, 4 and 5 there was also marked edema. None of these patients had azotemia or hypertension. Two of the patients had estivo-autumnal and two had quartan malaria. Under treatment the symptoms of nephritis were promptly relieved in cases 1, 4 and 5. Many observers have commented on this remarkable response of the renal symptoms to the antimalarial therapy.

In the modern literature on malaria there are very scant references to the eyeground changes. The older writers, however, especially those of the German and French schools, investigated the subject very thoroughly. Raynaud[13] in 1892, in an excellent monograph on the ocular disturbances in malaria, described the fundus changes in great detail. He emphasized that the most common pathologic finding is hyperemia of the disks and that this change is in most instances responsible for the transitory amblyopia. The hyperemia of the finer vessels gives the disks a rosy brilliant appearance. This remarkable finding was observed in cases 3, 6, 7 and 8 of our series. In the last two of these cases there was also a blurring of the edges of the disks. It may be of interest to note that Peunoff,[14] in 1879, was probably the first to describe accurately the disk changes in malaria.

Another remarkable change is the presence of retinal hemorrhages, which occur most often in the course of the larger vessels, although they may occupy the disk. Guéneau de Mussy[15] in 1872 was the first to describe these hemorrhages in malaria patients. Poncet[16] made a thorough study of the subject in 1878 and reported the presence of these hemorrhages in 10 per cent of his cases. There was also an excellent contribution on these fundus changes by Sulzer[17] in 1890. More recently, this subject was discussed by Collins and Mayon,[18] who mentioned two types of retinal hemorrhage—small peripheral and large central ones. The latter, these authors assert, are due to blockage of the retinal vessels by the parasites.

We observed retinal hemorrhages in three of our patients (5, 6 and 8). Most of the hemorrhages were rather small and flame shaped. In one instance there was a large oval hemorrhage with a pale center.

It should be noted that none of the patients showed marked papilledema or the presence of exudate. Engorgement and increased tortuosity of the larger retinal vessels were observed in only one instance.

It may be of interest to discuss briefly the blood counts in our series. As will be noted in the accompanying table, a moderate degree of anemia was almost a constant feature. On the other hand, the classic leukopenia was rather the exception than the rule, being present in only two instances. A marked leukocytosis was noted in two cases. One was a patient with cerebral malaria who recovered, and the other was a patient who had a pneumonic process.

Blood Counts

Case	Red Blood Cells	Hemoglobin, per Cent	White Blood Cells	Polymorphonuclears	Lymphocytes
1	3,200,000	60	7,000	74	24
2	2,230,000	65	20,000	85	15
3	3,400,000	70	22,000	73	23
4	3,300,000	60	4,800	56	44
5	2,850,000	55	3,200	71	29
6	3,000,000	60	6,400	78	22
7	4,400,000	70	16,000	74	26
8	2,800,000	70	10,500	60	38

Another laboratory test, which appeared to be of distinct value, was the spinal fluid examination. In all the patients with cerebral involvement there was a moderate increase in the cells, most of which were mononuclears, and definite increase in the albumin and globulin.

This group of cases was particularly interesting from a therapeutic standpoint. Quinine was used in cases 1 and 2, while patients 4, 5, 6, 7 and 8 were treated with atabrine, which is an alkyl amino-acridine derivative. Patient 3 was treated with both quinine and atabrine.

In recent years atabrine, which is a synthetic compound, has been used rather extensively in tropical countries, apparently with very favorable results. There is an extensive literature on the subject, especially by German and British workers. We were particularly impressed with the favorable reports of Cordes and de la Torre,[19] Green,[20] Hoops,[21] Thonnard-Neumann and LeDoux,[22] and Russell.[23] The only report on its intravenous use was by Mayer[24] in 1933.

10. Giglioli, George: Malarial Nephritis; Epidemiological and Clinical Notes on Malaria, Blackwater Fever, Albuminuria and Nephritis in the Interior of British Guiana, Based on Seven Years' Continual Observation, London, J. and A. Churchill, 1930.
11. Lorando, N. J.: Bull. Soc. path. exot. **23**: 584, 1930.
12. Goldie, Horatio: Tr. Roy. Soc. Trop. Med. & Hyg. **23**: 503 (March) 1930.
13. Raynaud, Lucien: Troubles oculaires de la malaria, Paris, H. Jouve, 1892.
14. Peunoff: Centralbl. f. praktische Augenh., 1879; cited by Raynaud.[13]
15. Guéneau de Mussy, Henri: J. d'ophth. **1**: 1, 1872; cited by Raynaud.[13]
16. Poncet (de Cluny): Ann. d'ocul., May, 1878; cited by Raynaud.[13]
17. Sulzer, E.: Arch. d'ophth., May-June, 1890; cited by Raynaud.[13]
18. Collins, E. T., and Mayon, M. S.: Pathology and Bacteriology of the Eye, Philadelphia, P. Blakiston's Son & Co., 1925.
19. Cordes, W., and de la Torre, T.: Ann. Rep. M. Dept., United Fruit Company **20**: 51, 1931.
20. Green, Richard: Lancet **1**: 826 (April 16) 1932.
21. Hoops, A. L.: Tr. Roy. Soc. Trop. Med. & Hyg. **26**: 289 (Nov.) 1932.
22. Thonnard-Neumann, E., and LeDoux, H. A.: Ann. Rep. M. Dept., United Fruit Company **20**: 57, 1931.
23. Russell, P. F.: Plasmochin, Plasmochin with Quinine Salts and Atabrine in Malaria Therapy, Arch. Int. Med. **53**: 309 (Feb.) 1934.
24. Mayer, Martin: Arch. f. Schiffs- u. Tropen-Hyg. **37**: 479 (Nov.) 1933.

In our series, atabrine was given by mouth only to patients 4, 5 and 6. As commented on previously, the response to this form of therapy was very prompt. Within twenty-four to forty-eight hours the temperature dropped to normal, and within four days the blood smears failed to show schizonts.

We administered this drug intravenously to three patients. In case 3 the atabrine was used after the patient apparently failed to respond to the intravenous use of quinine. There was rapid improvement after the use of atabrine. Of course it is difficult to decide whether or not the quinine was also a factor in this patient's recovery. It is to be noted that atabrine failed to destroy the estivo-autumnal gametocytes. Cases 7 and 8 failed to respond to intensive intravenous atabrine therapy. Of course, patients with cerebral malaria, as a rule, fail to respond to any therapeutic measure. The treatment of the pernicious form of the disease certainly merits further study.

We observed no untoward results from the use of atabrine, with the exception of a slight yellowish discoloration of the skin in one instance. This, however, cleared up within a week. Furthermore, the drug is not unpleasant to take and is not depressing.

Of course we are not prepared to draw definite conclusions in regard to the value of atabrine in malaria from so small a series of cases. It is our impression, however, that this drug is a valuable adjunct to quinine and, in our opinion, deserves further trial.

50 West Ninety-Sixth Street.

UNDULANT FEVER DUE TO BRUCELLA OF THE PORCINE TYPE—BRUCELLA SUIS

REPORT OF A MILK-BORNE EPIDEMIC

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Through the work of Hardy and his associates,[1] undulant fever is probably as well recognized in Iowa as in any other state. Yet, prior to 1933, only four cases of the disease were reported from the town of Council Bluffs, with a population of 42,000. One of these cases occurred in 1929 and three in 1932, the last of the patients being taken ill, Nov. 7, 1932. Moreover, two of the four patients came to Council Bluffs for diagnosis.

During the months of February, March and April 1933 the disease appeared in epidemic form. In all, thirty persons were involved and of those twenty-seven were known to obtain their milk from one dairyman, who supplied approximately eighty households with raw milk. One other patient obtained milk from a grocery of which part of the milk supply came from the suspected dairy.

None of these patients were known to have contact with animals or to handle raw meat.

The clinical histories and symptoms of the patients did not differ materially from those given in previous descriptions of the disease. In some cases, however, the patients looked more seriously ill than is generally found in infections with Brucella abortus (the type of organism responsible for contagious abortion in cattle). From their appearance alone they gave rise to the suspicion that the infection was with the porcine type (Brucella suis).

The histories of the patients and the treatment used are given in brief in the accompanying table.

We do not consider that any estimate of the efficacy of the various methods of treatment used can be made on the small number of cases given here. Undulant fever is notoriously uncertain in its duration. Only by collecting and comparing a large number of cases treated by different agents will an estimate of their relative value be attained. It is in the hope that we may be of assistance in this object that we record the methods of treatment used in this epidemic.

May 4, 1933, twelve of the patients were visited and blood was taken for culture. The method used was that practiced in the Iowa State Hygienic Laboratories.[1b] The cultures were incubated in Council Bluffs over night and taken to the laboratory at Iowa City the next day. Four of these cultures proved positive. The dates on which a growth of Brucella was obtained will be found in the table of cases.

In every instance subcultures made from the original positive broth cultures on liver infusion agar yielded a vigorous growth of Brucella within forty-eight hours under normal atmospheric conditions.

In addition to these cultures, a culture in litmus milk (J. K.) was received, May 4, from Dr. A. A. Johnson, Council Bluffs. In direct smears from this culture he considered that he could see Brucella. On arrival at the laboratory this culture was transferred to liver infusion agar. It gave a vigorous growth of Brucella under normal atmospheric conditions in twenty-four hours. Two guinea-pigs were inoculated intramuscularly with the original milk culture. One of these died seventeen days later. At autopsy it showed lesions typical of Brucella infection, and the organism was found in cultures from the liver and spleen. The other guinea-pig of the pair was killed after fifty-six days and again showed lesions typical of Brucella infection. The organism was recovered from the spleen.

A further culture (H. P.) in liver infusion broth was taken, May 22. From this a growth of Brucella was obtained, May 29.

The rapid and vigorous growth of Brucella from these cultures under ordinary atmospheric conditions suggested the porcine type. Differentiation by the dye plate and hydrogen sulphide production methods of Huddleson [2] confirmed this.

Thus in blood cultures from fourteen of the patients a growth of Brucella suis was obtained in six.

As twenty-seven of the patients had obtained their milk from the one dairy (here designated as S), the evidence seemed to point strongly to this being the source of infection.

It was found that the dairyman had a herd of twenty cows and one bull. Inquiries into a history of contagious abortion gave essentially negative results. Eight years previously the disease had been present in the

1. (a) Hardy, A. V.: Pub. Health Rep. **43**: 503-511 (March 2) 1928. (b) Hardy, A. V.; Hudson, M. G., and Jordan, C. F.: J. Infec. Dis. **43**: 271-282 (Oct.) 1929. (c) Hardy, A. V.: Undulant Fever, J. A. M. A. **93**: 891-897 (Sept. 21) 1929; (d) Undulant Fever Symposium, Tr. Am. Pub. Health A., 1929. (e) Undulant Fever, J. A. M. A. **92**: 853-860 (March 16) 1929. (f) Hardy, A. V.; Jordan, C. F.; Borts, I. H., and Hardy, G. C.: Nat. Inst. Health Bull. 158, 1930. (g) Hardy, A. V.; Jordan, C. F., and Borts, I. H.: Pub. Health Rep. **47**: 187-193 (Jan. 22) 1932. (h) Jordan, C. F.: J. Infect. Dis. **48**: 526-540 (June) 1931.

2. (a) Huddleson, I. F.: Tech. Bull. 100, Agr. Exper. Sta., Michigan State College. (b) Undulant Fever Symposium, Tr. Am. Pub. Health A., 1929. (c) Am. J. Pub. Health **21**: 491-498 (May) 1931.

herd and the cattle had been vaccinated with a killed vaccine. Of the animals then involved none remained in the herd at the time of the inquiry. Since that time there had been no contagious abortion in the herd. One animal had, indeed, aborted during the previous year, but the abortion was early in pregnancy and might well have been of traumatic origin. Another cow was said to be difficult to get in calf.

There were no hogs on the farm.

Agglutination tests carried out on the blood serum of the animals showed six to be definite reactors and two to be suspicious.

May 2, milk samples were obtained from the four reacting animals still remaining in the herd. On arrival at the laboratory the gravity cream was removed and agglutination tests were performed on the whey. One sample gave a positive agglutination test to a titer of 1 : 500 by Huddleson's rapid method.[3] The cream from this milk was inoculated in 2 cc. amounts into each of a pair of guinea-pigs. One of these animals died fifteen days after inoculation and at autopsy was found to have enlargement of the lymphatic glands in the region of inoculation. Apart from postmortem changes there was no other gross pathologic change. Cultures were made from the lymph glands and spleen, and a growth of Brucella suis resulted.[4] The other guinea-pig, killed after fifty-eight days, showed lesions typical of Brucella infection. Culture was again positive.

It was found that the recent additions to the herd consisted of five animals. All had been purchased at the same farm (T) and were bought in calf. Three were obtained one year before and two four months before the onset of the epidemic of undulant fever. At the time of the investigation, four of these animals remained. They were all reactors and it was from one of these that the milk was obtained which was proved to contain Brucella suis.

The farm T was visited and there it was learned that two years before the farmer had bought some hogs in the hope of having a good yield of young pigs. Instead, all his sows aborted. At this time there was no contagious abortion among the cattle but it had been present one year before.

The herd at farm T consisted of ten animals. Of these, six proved to be definite reactors and two suspicious reactors to the agglutination test for contagious abortion. By the inoculation of cream samples into guinea-pigs, three of these cows were shown to be excreting the organism in their milk. The organism isolated from the inoculated guinea-pig proved, however, to be Brucella abortus.

The sale of milk from dairy S was stopped, April 17. The last patient to contract undulant fever in the epidemic took ill thirteen days later. Since that time till the date of writing (June 26) there has been only one further case in Council Bluffs, a patient who became ill on June 15.

COMMENT

This epidemic involved thirty persons. Of these, twenty-seven were known to have obtained their milk from one dairy. Inquiry failed to reveal any other source of infection and the last epidemic case occurred thirteen days after the sale of milk from the suspected dairy was stopped.

In blood cultures from fourteen patient Brucella suis was obtained in six instances. No other type of Brucella was obtained. Among the cows remaining at the dairy, only one was found to be shedding Brucella in her milk. The organism was again Brucella suis.

It would therefore appear justifiable to assume that this was a milk-borne epidemic of undulant fever due to Brucella suis.

It has long been known that cattle may be experimentally infected with the porcine variety of Brucella and that the organism may settle in the mammary gland.[5]

Whether under natural conditions cattle may become infected with Brucella suis has been more in doubt.

Schroeder and Cotton[5] failed to produce infection in cattle by feeding and cohabitation experiments. Graham and Thorp[6] found that a small percentage of previously nonreacting cattle during twenty-six months' exposure to reacting sows and to the premises of reacting sows gave a temporary positive agglutination test for Bang's disease.

Cohabitation and feeding experiments do not, then, give very definite evidence of the likelihood of cattle becoming infected with Brucella suis under natural conditions. More definite evidence that this is possible is to be found in the work of Huddleson,[2b] who out of ninety-six strains of Brucella isolated from bovine sources found eight to be of porcine type; in the work of Plastridge and McAlpine,[7] who out of sixty found eight porcine type, and in the work of Gilman and Milks,[8] who found four out of 117 strains isolated from cow's milk to be of porcine type.

With the exception of two cases reported by Carpenter and Merriam,[9] no outbreaks of undulant fever due to cow's milk appear to have been reported in which the porcine variety of Brucella was isolated from both the milk and the patient.

Cases due to milk infected with the bovine variety of Brucella are common, but, none the less, there are few when compared with the amount of infected raw milk that is consumed. Traum[10] estimates that approximately 20 per cent of the cattle in the United States are infected and that from 6 to 10 per cent are excreting Brucella in their milk. Carpenter and Boak[11] estimate the incidence of infection in cattle at from 15 to 20 per cent.

Milk-borne infections with the bovine variety are, as a rule, scattered, and rarely do more than four or five cases occur on one milk route. Exceptional is the epidemic reported by Farbar and Mathews,[12] in which twenty cases on a college campus were attributed to milk from a herd of twenty-three cows.

This disparity between the opportunity for human infection and the actual occurrence of illness has led to the belief that the bovine variety of Brucella is of low virulence for man. Wilcox[13] considers that the danger of infection is relatively small when milk is used containing the bovine variety in considerable dilution.

3. Huddleson, I. F.: Tech. Bull. 128, Agr. Exper. Sta., Michigan State College. Huddleson, I. F., and Abell, Elizabeth: J. Infect. Dis. **42**: 242-247 (March) 1928.

4. Dr. I. F. Huddleson kindly checked the typing of this organism and of those isolated from the patients.

5. Hadley, F. S., and Beach, B. A.: Res Bull. 55, Wisconsin Agr. Exper. Sta. 1922. Cotton, W. E.: J. Am. Vet. M. A. **62**: 179-192, 1922. Schroeder, E. C., and Cotton, W. E., ibid. **66**: 550-561, 1925. Carpenter, C. M., and King, M. J.: Undulant Fever Symposium, Tr. Am. Pub. Health A., 1929.

6. Graham, R., and Thorp, F.: North American Vet. **13**, Jan. 1932.

7. Plastridge, W. N., and McAlpine, J. G.: J. Infect. Dis. **49**: 127-134 (Aug.) 1931.

8. Gilman, H. L., and Milks, C. H.: Cornell Vet. **23**: 130 (April) 1933.

9. Carpenter, C. M., and Merriam, H. E.: Undulant Fever from Brucella Abortus, J. A. M. A. **87**: 1269-1271 (Oct. 16) 1926.

10. Traum, J.: Am. J. Pub. Health **20**: 935-942 (Sept.) 1930.

11. Carpenter, C. M., and Boak, R. A.: Am. J. M. Sc. **185**: 97-109 (Jan.) 1933.

12. Farbar, M. E., and Mathews, F. P.: Ann. Int. Med. **2**: 873-880 (March) 1929.

13. Wilcox, H. L.: Am. J. Pub. Health **22**: 1157-1160 (Nov.) 1932.

It would appear probable that mild or subclinical infection with Brucella abortus (bovine type) is more common than are active infections. Jordan in 1931,[th] in a community of persons drinking large quantities of raw milk from an infected herd, found 8 per cent to have agglutinins to a titer of 1 : 20 or more and 35 per cent to a titer of 1 : 10 or more. From one of the members of this community, a man with no symptoms of undulant fever, Brucella abortus was found in cultures from the blood. One of us (C. P. B.) in 1933 tested 197 persons in the same community and found that 6.6 per cent had agglutinins on a titer of 1 : 20 or more. On 193 of these persons an intradermal test was performed, a dose of 0.1 cc. of a killed Brucella culture standardized to approximately 6 million organisms per cubic centimeter being used; 20.8 per cent gave a definitely positive reaction. None had clinical symptoms of undulant fever.

Observations in Thirty Cases of Undulant Fever

Case*	Age	Sex	Date of Onset, 1933	Duration of Illness	Severity of Illness	Signs and Symptoms	Treatment	Amount of Milk Consumed Daily	Agglutination Titer	Blood Culture	Source of Milk
1. V. M.	14	♀	February	12 weeks	Moderate	Intermittent temperature, chills, headache, 3 bouts of fever each 1 week in duration	Symptomatic	2-3 glasses	1:1,280 3/29/33	Positive 5/28/33	Grocery, many sources
2. M. H.	5	♀	Feb. 7	12 weeks	Moderate	Chills, fever, sweats	Symptomatic	1 quart	1:2,560 3/14/33	Not done	S. dairy
3. R. C. (A)....	19	♂	Feb. 15 (circa)	14 weeks	Moderate	Intermittent attacks of fever chills, sweat, joint pains	Symptomatic	Coffee and cereals only	1:640 4/25/33	Negative 5/13/33	S. dairy
4. S. K. B. (B)†	42	♂	Feb. 25	25 days	Severe	Elevated temperature, headache, general malaise	Autogenous blood serum; well 2 weeks after treatment begun	2 quarts	1:640 4/11/33	Contaminated, no Brucella	S. dairy
5. M. T. L.	40	♂	February	6 weeks	Severe	Chills, fever, sweats, joint pains	Intravenous neutral acriflavine 1%, 5 doses of 10 cc.; temperature normal 2 weeks after first dose	Coffee and cereals only	1:640 5/4/33	Not done	S. dairy
6. Mrs. I. C. (A)	44	♀	March 1	12 weeks	Moderate	Malaise, night sweats, aching	Symptomatic	Coffee and cereals only	1:1,280 4/28/33	Contaminated; no Brucella 5/13/33	S. dairy
7. H. P.	7	♂	March 1	12 weeks	Moderate	Tiredness, anorexia, fever, sweats	Symptomatic	3-4 glasses	1:640 5/6/33	Positive 5/29/33	S. dairy
8. H. A. P.	42	♀	March 1	4 weeks	.....	Pharyngitis and influenza immediately before onset; night temperature, tiredness, pain in joints and upper part of abdomen	Symptomatic	1 glass; 3-4 glasses since onset of influenza	1:160 4/19/33	Not done	S. dairy
9. M. A. (C)‡...	25	♀	March 1	14 days	Ambulatory	Malaise, fever, chills	Symptomatic	Occasional glass and in cereal and coffee	1:320 5/6/33	Not done	S. dairy
10. E. B. (B)†...	10	♂	March 4	8 weeks	Severe	Elevated temperature, headache, general malaise	Autogenous blood serum; remission after treatment	1¼ quarts	1:640 3/15/33	Not done	S. dairy
11. B. S. (D)....	12	♀	March 12	8 weeks	Moderate	Headache, elevated temperature	Symptomatic	3 glasses	1:320 4/13/33	Not done	S. dairy
12. F. La M.....	18	♂	March 12	7 weeks	Moderate	Fever, weakness, aching pains, tender spleen	Intravenous neutral acriflavine 0.3%, 5 doses, 20 cc., every third day; temperature normal 2 weeks after first dose	Coffee and cereals only	1:640 4/12/33	Negative 5/13/33	S. dairy
13. Mrs. O. F. A. (C)	50	♀	March 15	7 weeks	Moderate	Elevated temperature, headache, malaise, exhaustion	Undulant fever vaccine	Coffee and cereals only	1:320 4/1/33	Negative 5/13/33	S. dairy
14. C. F.	8	♂	March 15	Not known	Severe	High temperature, headache and general malaise	No information	2 glasses	1:640 4/18/33	Negative 5/13/33	Grocery, many sources
15. Mrs. G. A. ..	25	♀	March 15	Not known	Moderate	Fever, chills	No information	4 glasses	1:640 4/25/33	Not done	Grocery which obtained some milk from S. dairy
16. D. A. (C)....	20	♀	March 20	7 weeks	Moderate	Headache, elevated temperature, chills, malaise	Undulant fever vaccine	2-3 glasses	1:1,280 4/1/33	Negative 5/13/33	S. dairy
17. J. K.	18	♂	March 25	4	Severe	Dizziness, headache, weakness	Symptomatic and neutral acriflavine by mouth (1 grain t.i.d.)	4-5 glasses	1:2,560 4/25/33	Positive 5/8/33	S. dairy
18. Mrs. H. S. ... (D)	41	♀	March 27	16 weeks	Moderate	Elevated temperature, legs and body sore, fulness in chest; headaches	Symptomatic	Coffee and cereals only	1:80 4/14/33	Not done	S. dairy

Observations in Thirty Cases of Undulant Fever—Continued

Case	Age	Sex	Date of Onset, 1933	Duration of Illness	Severity of Illness	Signs and Symptoms	Treatment	Amount of Milk Consumed Daily	Agglutination Titer	Blood Culture	Source of Milk
19. O. D.	14	♂	April 13	10 days	Moderate	Chills, headache, malaise, enlarged spleen	Undulant fever vaccine	3-4 glasses	1:1,280 4/24/33	Not done	S. dairy
20. R. L.	7	♀	April 18 (circa)	5 weeks	Mild	Tired, aching pains in legs, sweats, fever, chills	Symptomatic	2-3 glasses	1:2,560 5/8/33	Not done	S. dairy
21. O. E. A. (C)‡	50	♂	April 15	4 weeks	Moderate	Chills, elevated temperature 102, malaise, aches	Symptomatic	1 glass	1:320 5/6/33	Not done	S. dairy
22. P. C.	4	♀	April 20	12 weeks	Moderate	Intermittent temperature, headache	Symptomatic	3 glasses	1:320 4/29/33	Positive 5/13/33	S. dairy
23. A. M.	17	♀	April 23	40 weeks	Moderate	Pain in knees and calves, mild abdominal pain, high temperature with remissions	Intravenous neutral acriflavine 1%, 2 doses of 10 cc. and 4 doses of 20 cc.; temperature fell to normal in 2 weeks after first dose	2 glasses	1:1,280 5/1/33	Not done	S. dairy
24. G. M.	25	♂	April 25	66 days	Moderate	Cough, weakness, loss of weight, fever, pain in chest, profuse sweats	Intravenous neutral acriflavine 1%, 5 doses of 10 cc.; first dose given in fifth week of disease; temperature returned to normal 1 week after start of treatment	2-3 glasses	1:40 6/3/33	Not done	S. dairy
25. F. J. A.	10	♀	April 27	6 weeks	Moderate	Weakness, cramps, over body and in stomach and bowels, constipation, loss of appetite, fever	Intravenous neutral acriflavine 0.5%, 10 cc. undulant fever vaccine; 4 doses of each; temperature returned to normal in 1 month	4 glasses	1:80 5/13/33	Not done	S. dairy
26. Mrs. S. T. H.	36	♀	April 30	8 weeks	Severe	General malaise, headaches, nose bleeds, high temperature	Symptomatic	1-2 glasses	1:1,280 5/29/33	Not done	S. dairy
27. C. D. (E)§...	9	♂	Late April	6 weeks	Moderate	Fever, chills, sweats, joint pains	O'Neil goat serum 1 dose of 10 cc.; temperature returned to normal 2 weeks thereafter	Not known	1:640 5/6/33	Not done	S. dairy
28. D. D. (E)§...	25	♂	Late April	6 weeks	Moderate	Fever, chills, sweats, joint pains	O'Neil goat serum 1 dose of 20 cc.; temperature returned to normal 2 days thereafter	Not known	Not done	Positive 5/13/33	S. dairy
29. M. D. (E)§...	23	♀	Late April	4 weeks	Moderate	Fever, chills, sweats, tired	O'Neil goat serum 1 dose of 20 cc.; temperature returned to normal 1 week thereafter	Not known	Not done	Positive 5/13/33	S. dairy
30. J. S.	38	♂	May 1	6 weeks	Very mild	Fever, headache, tiredness; only tested because of drinking milk from suspected dairy	Symptomatic	2-3 glasses	1:1,280 6/7/33	Not done	S. dairy

* A, B, C, D and E indicate that the patients were of the same family.

† The autogenous blood serum used in these cases was prepared by defibrinating blood and inactivating it at 56 C. In each case six doses were given at five day intervals, starting with 0.1 cc. and increasing by 0.1 cc. for each dose.

‡Patients were visited on May 4, 1933. Two other members of the household, Mrs. O. E. A. and D. A., were then ill in bed with undulant fever. M. A. and O. E. A. had not taken to bed but complained of chills and malaise. O. E. A. subsequently had to take to bed.

§ O'Neil goat serum is an immune serum prepared by Dr. A. E. O'Neil of Cincinnati (Ohio State M. J. **29**: 48 [July] 1933) by inoculating goats with killed detoxified cultures of Brucella.

Dooley [14] records an epidemic of subclinical infection in a boys' boarding school, and Johns, Campbell and Tennant [15] report the results of their investigation in a hospital for epileptic patients whose milk came from an infected herd. Of the group of 100 that they studied, 41 per cent gave agglutination in titers of 1:10 and over and 45 per cent reacted positively to an intradermal test. By careful physical examination and temperature records, 22 per cent were found to be mild ambulatory cases of undulant fever. Welch and Mickle [16] also bring forward evidence of the existence of subclinical Brucella infection.

The greater virulence of Brucella suis for experimental animals has been frequently demonstrated.[17]

Morales-Otero,[18] by feeding experiments on human volunteers, showed the greater virulence for man of the porcine strain. These results are borne out by the observations of many workers in the United States

14. Dooley, Parker: Undulant Fever, Arch. Int. Med. **50**: 373-379 (Sept.) 1932.

15. Johns, E. P.; Campbell, F. J. H., and Tennant, C. S.: Canad. M. A. J. **27**: 490-497 (Nov.) 1932.

16. Welch, Henry, and Mickle, F. L.: J. Lab. & Clin. Med. **18**: 627 (March) 1933.

17. Cotton,[5] Schroeder, E. C., and Cotton, W. E.: J. Am. Vet. M. A. **65**: 211-213, 1924. Smith, Theobald: J. Exper. Med. **43**: 207-223 (Feb.) 1926. Huddleson, I. F., and Hallmann, E. T.: J. Infect. Dis. **45**: 293-303 (Oct.) 1929.

18. Morales-Otero, Pablo: Puerto Rico J. Pub. Health & Trop. Med. **6**: 3-88 (Sept.) 1930.

that in packing houses a much higher proportion of the men employed in handling hog carcasses contract undulant fever than those handling cattle or sheep carcasses.

One would then expect a greater number of cases of active illness to be associated with a milk supply infected with Brucella suis than with one infected with Brucella abortus. In the epidemic here reported, this expectation was realized. In one fourth of the households supplied by dairy S, one or more cases of undulant fever developed.

At this stage no additional argument should be needed for the pasteurization of milk. If one is wanted, it will be found in the possibility of milk containing Brucella suis.

SUMMARY

1. In a milk-borne epidemic of undulant fever thirty cases occurred. Of these patients, twenty-seven obtained their milk from the same dairy.

2. The dairy, from a herd of twenty cows, supplied approximately eighty households; in eighteen of these, cases of undulant fever developed.

3. Brucella suis was obtained in blood culture from six of fourteen patients and from the milk of one of the cows in the herd.

4. The epidemic ceased thirteen days after the stoppage of the sale of milk from the dairy.

5. There is a greater virulence of Brucella suis than of Brucella abortus. The possibility of milk containing Brucella suis must be considered.

Clinical Notes, Suggestions and New Instruments

INFLUENZAL MENINGITIS: REPORT OF A CASE WITH COMPLETE RECOVERY

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The reasons for reporting this case of influenzal meningitis are twofold: first, such cases are comparatively rare, and, second, the patient made a complete recovery.

REPORT OF CASE

H. Z., a girl, aged 8 years, on the morning of February 8 complained of a headache, which had been present since her evening meal the night before. A tentative diagnosis of a gastric upset was made and treatment prescribed. The following day, about thirty-six hours after the onset, after a careful examination, the only manifestation that could be elicited was a suggestion of nuchal rigidity. She had vomited that morning. A spinal puncture revealed cloudy fluid under a great deal of pressure, with a cell count of 1,300. The patient was then sent to the St. Agnes Hospital.

The past medical and family histories contained nothing of importance in relation to the illness. On examination the child was mentally alert. There was a definite Brudzinski's sign and a positive Kernig's. The reflexes were slightly exaggerated. The pupils were equal and reacted to light and in accommodation. The remainder of the examination was negative.

On admission, the patient's temperature was 103.4 F., pulse 132, respiration rate 34. Having received three toxin-antitoxin injections five years previously, she was desensitized by the injection of 0.1 cc. of antimeningococcus serum hypodermically, the dosage being increased 0.1 cc. every half hour until 5 cc. was used; she was then given 30 cc. of antimeningococcus serum intravenously. Another spinal puncture was done and 15 cc. of antimeningococcus serum was introduced. The spinal fluid was cloudy; the cell count was 370, with a differential of polymorphonuclear cells 88 per cent, and lymphocytes 12 per cent. Examination of the sugar was negative, globulin was 4+, and the smear and culture were also negative. The blood count was as follows: red blood cells, 3,840,000; white blood cells, 25,200; hemoglobin, 80 per cent; polymorphonuclear cells, 76 per cent. The urine was neutral, with a specific gravity of 1.038; there was a trace of albumin and an occasional white blood cell. Within the following forty-eight hours she was given 30 cc. of antimeningococcus serum intravenously, and, after as much spinal fluid as possible was withdrawn, 15 cc. of the same serum was introduced intrathecally at intervals of eight hours. Between 25 and 40 cc. of spinal fluid was removed at each puncture to lower the pressure to normal. These specimens showed a cell count varying between 94 and 438, with a preponderance of polymorphonuclear leukocytes; examination of the sugar was negative, globulin was 4+, and the chlorides varied between 580 and 680 mg. per hundred cubic centimeters. The Levinson test was negative, and no acid-fast bacilli were found. On the second day the spinal fluid showed a growth of gram-negative bacilli, which at first were mistaken for diplococci but were later proved to be influenza bacilli. During this forty-eight hour period the temperature varied between 100.2 and 105 F., the pulse between 100 and 136, and the respirations between 24 and 38. The patient complained of severe headache. The nuchal rigidity was always aggravated after the serum was introduced into the spine.

On the third day of admission, several smears of the spinal fluid revealed gram-negative bacilli similar to those found in the positive culture the day before, and a positive diagnosis of influenzal meningitis was made by Dr. John Kolmer. It was then decided that anti-influenzal serum should be used.[1] After the spine was drained, 15 cc. of anti-influenzal serum mixed with from 3 to 5 cc. of fresh complement was introduced intrathecally every eighth hour. This was continued for forty-eight hours. During this period the cell count varied between 101 and 220. Examination of the sugar was negative and the globulin was reduced to 2+. All smears were negative. The temperature varied between 100.4 and 103.2, and the reflexes were almost entirely gone. The nuchal rigidity was very marked at this time, the patient acquiring the position of opisthotonos, but there was no evidence of paralysis or mental disturbance. The serum was now given every twelfth hour. At times the spinal fluid was under greater pressure than at others, remaining cloudy, but the sugar was beginning to return. The globulin was 2+, and the chlorides varied between 540 and 680 mg. per hundred cubic centimeters. The twelve hour treatment was continued for two days, after which time an anti-influenzal serum of another biological house was used. Although it was realized that the patient was improving clinically and the spinal fluid was approaching normal, i. e., the pressure was diminished, sugar was returning, and globulin dropped to 2+, the change of serum was made because several smears still showed gram-negative bacilli, and it was felt that the new serum was probably made from different strains of influenzal bacilli. This serum was given every twelfth hour for three days and then once daily. The globulin gradually decreased and sugar slowly returned. Several smears still showed gram-negative bacilli. The temperature gradually came down, as did the pulse and respiration rates. The last positive smear was reported, February 21, the serum being discontinued three days later. However, the spine was tapped every other day until February 27, each smear being reported negative. Sugar was normal, but there was still a slight increase in the cell count and globulin. The increase in the cells and globulin was due to the irritation of intrathecal medication. During the course of the illness, almost 750 cc. of spinal fluid had been removed and 565 cc. of serum introduced into the spine.

February 15, six days after admission, an urticaria developed, which was controlled by epinephrine hypodermically and calcium gluconate by mouth. The urticaria was probably due to the antimeningococcus serum given intravenously.

The temperature reached normal, February 24, and remained so until the time of her discharge from the hospital, March 9, twenty-eight days from the time she had been admitted. The spinal fluid was entirely normal, and at present (six months following her illness) she is enjoying perfect health.

1. This serum was procured through the courtesy of Dr. L. J. Wenger.

ETIOLOGY

Influenzal meningitis belongs to the group of acute purulent meningitides. It is caused by the influenza bacillus or bacillus of Pfeiffer. There are numerous strains of the organism, which explains the difficulty at times of recognizing it microscopically. It is a gram-negative rod, varying in size and shape from small diplococci to short or long bacilli, staining at the poles.

Influenzal meningitis most commonly occurs in children under 2 years of age, usually in the fall and early winter. Curiously enough, it rarely occurs during an epidemic of influenza, but this may be due to the fact that the strains of the bacilli that cause meningitis are not prevalent during an epidemic. It may occur as a primary disease as the case here cited, or it may be secondary to an influenzal infection elsewhere. Neal [2] is of the opinion that most cases are secondary and believes that, if a careful inquiry into the history is made, an otitis media or sinus infection can be found.

The symptomatology of this disease is not unlike that of other purulent forms of meningitis.

DIAGNOSIS

The diagnosis rests on the changes in the spinal fluid. The spinal fluid is usually under increased pressure and shows the characteristics of an inflammatory exudate. The cells are increased with a preponderance of polymorphonuclear leukocytes; albumin and globulin are increased, and sugar is diminished or absent. It is important to mention not only that the cells should be counted promptly after the spinal puncture but that a tube of the fluid should be centrifugated at once, a smear made and stained immediately, to avoid not only contamination but also autolysis of the organisms. The interpretation of stained smears is more important than culture of the fluid, and since it is difficult to grow the bacilli, it would take several days to make a diagnosis. The frequent study of the smears aids in the diagnosis and in determining whether or not the spinal fluid is bacteria free. The latter is a guide as to whether or not the serum should be continued in the treatment of the case.

PROGNOSIS

The mortality is extremely high. Griffith and Mitchell [3] and Morse [4] state that they have never seen a patient recover. Bloom [5] collected reports of 302 cases, with a mortality of 92 per cent. Jenks and Radbill [6] reported a mortality of 98 per cent in eighty-seven cases. The small percentage of patients who do survive are usually crippled because of various palsies or are left mentally retarded from a hydrocephalus.

TREATMENT

The most important factor in the treatment of this disease is an early diagnosis. Until the causative organism is found, each case of meningitis should be treated as that of meningococcic meningitis. No harm can be done if the canal is drained and meningococcus serum is introduced. If Pfeiffer's bacillus is found, immediate treatment with the anti-influenzal serum should be instituted.

The serum was obtained after five months' injection of a horse with twelve selected strains of influenza bacilli, recently isolated from cases of influenzal meningitis and acute respiratory infections.[7] Selection of strains for injection of horses was determined by the character of colony (smooth), by the degree of antigenicity, and by the polyvalence. Selection of serum for therapeutic uses was determined by its agglutination titer against the strains of influenza bacilli.

In the treatment, the introduction of 15 cc. of the serum with 5 cc. of fresh complement is recommended, after as much spinal fluid as possible has been removed. The latter is used because there is no complement in the spinal fluid in influenzal meningitis.[8] Fresh human serum in combination with antimeningitis serum, however, definitely increases opsonic activity.[9] It is best procured from either parent by removing about an ounce of blood, several hours before it is used, and icing it at once. A clot will form, and the serum can be removed easily with a sterile glass pipet. This treatment should be repeated every eighth hour for two or three days; then, every twelfth hour for two or three days and, finally, once a day. If there is blockage in the canal, use of either the fontanel, if open, or the cisterna may be resorted to. If an infection of the skin develops owing to the numerous punctures, another site should be selected to avoid introducing an infection into the canal. If there is no improvement within two or three days, a change of serum is advisable, as the biologic houses do not employ the same strains of bacilli in the preparation of the serum. Daily injections of the serum should be continued until three successive negative smears are found. Should the bacilli return after several negative days, the daily injections should be repeated.

Absolute rest in bed with a soft diet and plenty of fluids are essential. The secondary anemia, which usually accompanies or follows the illness, should be treated during the convalescence with iron and arsenic by mouth and by injection, if necessary.

CONCLUSIONS

Since the mortality of influenzal meningitis is very high, an early diagnosis, with frequent spinal drainage and intrathecal treatment with specific serum, is the only means at present by which the mortality and morbidity may be reduced.

5400 West Arlington Street.

2. Neal, Josephine B. in Tice, Frederick: Practice of Medicine, Hagerstown, Md., W. F. Prior Company **10**: 256, 1921.
3. Griffith, J. P. C., and Mitchell, A. G.: Diseases of Infants and Children, ed. 2, Philadelphia, W. B. Saunders Company, **2**: 614, 1926.
4. Morse, J. L.: Clinical Pediatrics, Philadelphia, W. B. Saunders Company, 1926, p. 731.
5. Bloom, C. J.: Influenzal Meningitis, New Orleans M. & S. J. **83**: 455 (Jan.) 1931.
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7. Wenger, L. J.: Personal communication to the author.
8. Kolmer, J. A.; Toyama, Ikuzo, and Matsunami, Toitsu: J. Immunology **2**: 159 (May) 1918.
9. Matsunami, Toitsu, and Kolmer, J. A.: J. Immunology **3**: 181-199 (May) 1918.

TORSION OF THE NORMAL OVARY

CASE OF REOCCURRENCE OF A RARE PATHOLOGIC CONDITION

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The annals of American medicine and surgery contain many rare reports, but it is seldom that the rarity occurs in the same individual on two different occasions. In a previous paper [1] a report was given of the torsion of a normal ovary and its tube with rupture of the ovary. With an addendum [2] to the first paper, twenty-six cases of torsion of the normal ovary with and without the normal fallopian tube were gathered from all the available literature. However, in no instance had the identical condition reoccurred. A perusal of the available literature since the previous papers also supplies no such double occurrence. The nearest like double occurrence was reported by Mankad.[3] In this case a right cystic ovary was found twisted, and on inspection of the left ovary it was found to be normal but twisted, buried in adhesions. In the present case, two years and three months elapsed between the two identical surgical conditions.

REPORT OF CASE

W. S., a girl, May 14, 1931, when 7 years of age, was operated on for acute appendicitis with a mild peritonitis as the provisional preoperative diagnosis. When the peritoneal cavity was entered, a mass shaped like a kidney, attached to a pedicle about 3 cm. long, was found in the pelvic midline. On its medial side could be seen the right fallopian tube and on its lateral side could be seen a rent, about 1.5 cm. long, with no blood issuing from it. The mass and its tube as well as the appendix was removed. Before the abdomen was closed, examination of the left ovary and tube revealed them to be normal in size and consistency. The pathologic diagnosis was torsion of the right normal ovary and tube with rupture of the ovary. After a stormy convalescence for the first three days, the patient made an uneventful recovery.[1]

1. Northcutt, J. D., and Baron Charles: Torsion of a Normal Ovary and Tube with Rupture of the Ovary and Review of All Literature to Date, Kentucky M. J. **29**: 590-593 (Nov.) 1931.
2. Baron, Charles: Torsion of a Normal Ovary and Tube with Rupture of the Ovary and a Review of All Literature to Date: An Addendum, Kentucky M. J. **30**: 232 (April) 1932.
3. Mankad, C. K.: Torsion of Ovary on Both Sides, Indian M. Gaz. **66**: 22 (Jan.) 1931.

Following this operation, she had brief periods of pain in the region of the left brim of the pelvis. Laxatives relieved it. A slight constipation was always relieved by laxatives. Aug. 17, 1933, at the age of 9, about two years and three months following the first operation, she woke up with pain in the left lower quadrant. An enema gave complete relief. Two days later she awoke at 6 a. m. with pain in the same region. An enema and laxatives failed to relieve her. Three or four enemas were given during the day and, no relief being obtained, codeine was given. During the day she began to vomit, four times in all. The next morning, the fourth day, enemas and oil failed to relieve her and she was then brought to the hospital. When she entered, she was experiencing attacks of pain at hourly, one and one-half hourly and two hourly intervals. She began to vomit again. The abdomen was slightly distended. Abdominal palpation revealed no rigidity but there was distinct tenderness in the right lower quadrant just above the pelvic brim. A rectal examination revealed the presence of a mass in the midline that could not be identified as any definite viscera or as a foreign mass.

Roentgen examination revealed a considerable accumulation of gas in the colon but no definite evidence of obstruction. The kidney outlines were not made out. The entire abdomen was opaque, accumulation of fluid being present.

The preoperative diagnosis of torsion of the ovary was made for the following reasons: 1. A mass was felt in the midline, too large to be the uterus. 2. The appendix had previously been removed. 3. Timing of the pains ruled out obstruction or intussusception. 4. There had been a previous torsion of the left ovary.

Under ethyl chloride and ether anesthesia, an abdominal incision was made in the median line. There was no free fluid in the peritoneal cavity. Over the uterus in the midline was found a kidney-shaped, dark red ovary, twisted one and one-half times to the right, with a pedicle about 0.5 cm. long. After the pedicle had been clamped with difficulty, tied and cut, the ovary and tube were removed. The abdomen was closed without drainage. The patient stayed in the hospital eleven days and made an uneventful recovery.

Pathologic examination showed the ovary and oviduct to be a deep purplish red. On section, the serosa and the muscularis and the mucosa of the oviduct were a uniform purplish red and the tissue was rather friable. The cut surface was covered with blood. The attached ovary was kidney shaped and measured 3½ inches (9 cm.) in length. The cut surface was a uniform deep purplish red and was covered with blood. Throughout the ovary there were multiple follicles, normal in size but filled with blood. The ovarian tissue was more friable than normal. Microscopic examination of the ovary and oviduct revealed massive hemorrhage into the tissues, which was so extensive that the normal structures could not be identified. The pathologic diagnosis was hemorrhagic infarction of the ovary and oviduct; the clinical diagnosis, torsion of the left ovary and tube.

COMMENT

It is interesting to recall[1] that anatomic anomalies were considered to be the chief predisposing factors in producing torsion of the ovary. It had been felt that "our patient had originally a large ovary, etiologic factor stressed by Norris[4] and Auvray.[5] Second, the ovary had an abnormally large pedicle that had formed when the large ovary had drawn away from the broad ligament, also suggested by these two men. Third, with these factors already present, her straining at stool for the past year was the needed factor to bring about repeated pelvic congestion and bring about the torsion as stressed by Rost."[6] Having been able in a most fortunate manner to see the second and remaining tube and ovary in situ at the first operation and having seen no evidence of anatomic anomalies, I am forced to the conclusion that anatomic anomalies are probably not the chief factors necessary toward torsion of the uterine adnexa. This can safely be said for the second torsion but cannot be said for the first, since the latter was not seen beforehand. In addition, the pedicle was considerably longer the first time. Because of the obscurity of a definite clinical picture denoting a bowel involvement, coupled with the palpation of a mass near the uterus and because of a past history of a like preceding pathologic condition, a correct diagnosis of torsion of the ovary was made preoperatively.

CONCLUSIONS

1. A case of torsion of the normal ovary and tube was observed in which the same condition occurred twice, involving one ovary and its tube and then the other, in a space of two years and three months. It is believed that this is the first case on record in which this rare pathologic condition occurred in the same individual twice.

2. It is believed that this is the first time that a positive diagnosis of torsion of the normal ovary has been made preoperatively.

3. In the differential diagnosis of abdominal pain in young girls, torsion of the uterine adnexa must be considered.

4. Factors other than anatomic anomalies must be considered in the predisposing causes toward torsion of the normal uterine adnexa.

3807 Decoursey Avenue.

4. Norris, C. C.: Torsion of Normal Ovary, Proc. Path. Soc. Philadelphia **14**:77, 1911.

5. Auvray: Un cas de torsion spontanée de la trompe et de l'ovaire normaux, Bull. Soc. d'obst. et de gynéc. **1**:727-731, 1912.

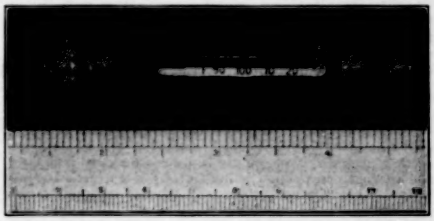
6. Rost, W. L.: Twisted Ovarian Pedicle, Arch. Pediat. **40**:787-789 (Nov.) 1923.

A COMBINED NEEDLE ADAPTER AND THERMOMETER FOR INTRAVENOUS INFUSIONS

PAUL TITUS, M.D., PITTSBURGH

A thermometer with a limited range of from 90 to 120 Fahrenheit, which is sufficient for intravenous infusions of various sorts, has been inserted within the lumen of an enlarged but otherwise ordinary glass adapter the tip of which is ground for intravenous needles with a standard Luer hub. This is a spirit thermometer with a colored (red) fluid and thus is easily read.

Glass adapters for the attachment of the needles are used for practically all intravenous injections. The use of the usual large infusion thermometers involves the addition of an extra breakable part and an extra piece of rubber tubing. Consequently the combination of these two parts in one makes for simplicity, at the same time allowing for more accurate information regarding the actual temperature of an intravenous infusion, as the thermometer is located near to the point of entry of the fluid into the vein.



Combined needle adapter and thermometer for intravenous infusions.

When an injection is begun, blood should not be allowed to "back up" into the infusion thermometer, as it may be held by capillary attraction and the tube may therefore be difficult to clean later. When this does occur, prolonged immersion in a small amount of hydrogen dioxide, alternating with a weak solution of nitric acid, will ordinarily clean the tube.

These infusion thermometers are relatively inexpensive and are made by Becton, Dickinson and Company of Rutherford, N. J.

1015 Highland Building.

From the John C. Oliver Memorial Research Foundation, St. Margaret Memorial Hospital.

Special Article

TYPHOID IN THE LARGE CITIES OF THE UNITED STATES IN 1933

TWENTY-SECOND ANNUAL REPORT

This report deals with the same ninety-three cities that have been discussed in the corresponding articles covering the years 1930, 1931 and 1932. The number of deaths from typhoid during 1933 in each city (except Scranton, as explained in a note to table 2) has been supplied by the respective health department. As the United States Bureau of the Census has found its usual method of computing the midyear populations of the large cities unsatisfactory for 1933 on account of the effects on such populations of the present economic conditions and has therefore made no estimates as of July 1, 1933, the rates in the present article are based on the estimates of the Census Bureau for July 1, 1932.

The problem of including in the rates for each city the typhoid deaths of nonresidents is as conspicuous as it has been for some years. In thirty-one of the ninety-three cities we are informed that one third or more of the typhoid deaths were in nonresidents; in seven of these thirty-one cities all the typhoid deaths were in nonresidents. These are indicated in table 9, which should be referred to also in studying tables 1-8.[1]

Particulars as to the data that are unavailable for certain cities (noted in tables 2-8 as "incomplete data") are given in the report covering the year 1932 and in the footnotes to these tables in all earlier articles.

The large New England cities again make an excellent record (table 1). Three cities (Fall River, Lynn and Waterbury) had no typhoid deaths within their borders for the third consecutive year. Two other cities in this group (New Haven and Worcester) report that the only typhoid deaths occurring in 1933 were in nonresidents. In the past four years (1930-1933) all but five (Boston, Hartford, Springfield, Lowell and Providence) of the New England cities have had at least one year of complete freedom from typhoid mortality. Perhaps the most remarkable record in this group is that of Boston, which registers the very low rate of 0.2, the lowest in its history and one of the lowest ever recorded by an American city with more than 500,000 population. At that, it is stated that one third or more of the reported typhoid deaths were in nonresidents. The group as a whole reports a new low average for 1933, making it practically certain that the New England cities, with a population of more than 2,500,000, will not average one typhoid death per hundred thousand inhabitants in the current five year period. This group of cities is excelled only by those of the East North Central states (table 4).

The cities in the middle Atlantic states show even greater improvement in 1933 than in the preceding year and record an average rate of less than one per hundred thousand for the second year in succession (table 2). Five cities in this group (Elizabeth, Paterson, Reading, Utica and Yonkers) report the complete absence of typhoid deaths during the year 1933, Elizabeth for the second year in succession. Utica has had a perfect record in three out of the past four years. Pittsburgh, which twenty-five years ago lost annually from typhoid about one of its citizens in every 1,500 of population, now reports but a single typhoid death in a population of approximately 700,000. Both Philadelphia and New York now have typhoid rates under 1 per hundred thousand. Camden, which still has relatively a technically high rate, reports that all the deaths were in nonresidents, so that there is evidently some missionary work to be done in the environs of that city. Scranton, which brings up the foot of the list, seems to have had more typhoid than for some years.

TABLE 1.—*Death Rates of Fourteen Cities in New England States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Fall River	0.0*	0.0	0.0	2.2	2.3	8.5	13.4	13.5
Lynn	0.0	0.0	0.0	1.5	1.8	3.9	7.2	14.1
Waterbury	0.0	0.0	0.0	1.2	1.0	8.0	18.8	....
Boston	0.2	0.5	0.9	1.2	2.2	2.5	9.0	16.0
Worcester	0.5	1.5	0.5	1.0	2.3	3.5	5.0	11.6
Hartford	0.6	0.6	3.6	1.3	2.5	6.0	15.0	19.0
Springfield	0.6	1.9	2.6	0.4	2.0	4.4	17.6	19.9
Bridgeport	0.7	0.0	0.7	0.5	2.2	4.8	5.0	10.3
Lowell	1.0*	2.0	1.0	2.6	2.4	5.2	10.2	13.9
New Haven	1.2	1.2	1.2	0.6	4.4	6.8	18.2	30.8
Providence	1.2	0.8	1.6	1.3	1.8	3.8	8.7	21.5
Cambridge	1.8	1.7	0.0	2.1	4.3	2.5	4.0	9.8
New Bedford	1.9*	0.0	1.8	1.5	1.7	6.0	15.0	16.1
Somerville	1.9	0.0	0.0	1.3	1.6	2.8	7.9	12.1

* Rate computed from population as of April 1, 1930, as no estimate for July 1, 1932, was made by the Census Bureau.

TABLE 2.—*Death Rates of Eighteen Cities in Middle Atlantic States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Elizabeth	0.0	0.0	4.3	1.6	2.4	3.3	8.0	16.6
Paterson	0.0	0.7	2.9	1.0	3.3	4.1	9.1	19.3
Reading	0.0	0.9	0.0	1.6	4.0	20.0	31.9	42.0
Utica	0.0	1.9	0.0	1.1	3.0*	....	....	....
Yonkers	0.0	0.7	1.4	0.5	1.7	4.8	5.0	10.3
Pittsburgh	0.1	1.3	1.2	2.4	3.9	7.7	15.9	65.0
Buffalo	0.3	1.3	0.7	2.7	3.9	8.1	15.4	22.8
Jersey City	0.3	0.8	0.3	0.9	2.7	4.5	7.2	12.6
Rochester	0.3	0.3	0.9	1.7	2.1	2.9	9.6	12.8
Newark	0.4	0.9	0.2	0.9	2.3	3.3	6.8	14.6
Philadelphia	0.6	1.3	0.9	1.1	2.2	4.9	11.2	41.7
Albany	0.8	0.8	2.3	1.8	3.0	8.0	18.5	17.4
Erie	0.9	1.7	0.8	0.9	2.3	8.9	20.0	46.6
New York	0.9	0.8	1.1	1.3	2.6	3.2	8.0	13.5
Syracuse	1.8	0.5	0.5	0.8	2.3	7.7	12.3	15.6
Trenton	2.4	0.8	1.6	2.1	8.2	8.6	22.3	28.1
Camden	3.3	2.5	4.2	4.4	5.9	4.9	4.5	4.0
Scranton†	3.4	1.4	2.1	1.8	2.4	3.8	9.3	31.5

* Incomplete data.
† Typhoid deaths for Scranton furnished by Pennsylvania Department of Health, Harrisburg.

TABLE 3.—*Death Rates of Nine Cities in South Atlantic States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Baltimore	0.4	0.6	3.1	3.2	4.0	11.8	23.7	35.1
Jacksonville	1.4	2.8	3.0	4.4	....	....	....	....
Richmond	1.6	2.7	1.6	1.9	5.7	9.7	15.7	34.0
Tampa	1.8	2.8	3.8	3.8	19.1	42.9†	....	....
Wilmington	1.9*	0.9	1.9	3.1	4.7	25.8†	23.2†	33.0
Miami	2.7	1.8	1.8	3.5	....	....	....	....
Washington	3.6	1.4	3.9	2.8	5.4	9.5	17.2	36.7
Norfolk	3.8*	0.8	5.4	2.2	2.8	8.8	21.7	42.1
Atlanta	6.0	8.8	12.6	11.1	14.5	14.2	31.4	56.4

* Rate computed from population as of April 1, 1930, as no estimate for July 1, 1932, was made by the Census Bureau.
† Incomplete data.

The preceding articles in this series were published in THE JOURNAL, May 31, 1913, p. 1702; May 9, 1914, p. 1473; April 17, 1915, p. 1322; April 22, 1916, p. 1305; March 17, 1917, p. 845; March 16, 1918, p. 777; April 5, 1919, p. 997; March 6, 1920, p. 672; March 26, 1921, p. 860; March 25, 1922, p. 890; March 10, 1923, p. 691; Feb. 2, 1924, p. 389; March 14, 1925, p. 813; March 27, 1926, p. 948; April 9, 1927, p. 1148; May 19, 1928, p. 1624; May 18, 1929, p. 1674; May 17, 1930, p. 1574; May 9, 1931, p. 1576; April 30, 1932, p. 1350, and May 13, 1933, p. 1491.

1. The problem of the nonresident has been discussed at some length in our previous reports; for example: J. A. M. A. 100: 1491 (May 13) 1933 and 98: 1550 (April 30) 1932.

The cities in the South Atlantic states have not done quite so well as a group, Wilmington, Miami, Washington and Norfolk all showing increases as compared with 1932 (table 3). Miami and Norfolk, however, report that one third or more of typhoid deaths were in nonresidents. Baltimore in this group makes a particularly fine showing, reporting the lowest rate ever recorded in that city. Atlanta also shows remarkable improvement, although it has still far to go before it can rival Baltimore. Many of the cities in this group have, as is well known, a large Negro population and it used to be supposed that the high typhoid rates of these and other Southern cities were due in large part to the excessive mortality from typhoid among the Negro populations. Analyses of the typhoid death rates in several Southern states, however, have shown that in many localities the white typhoid mortality is as high as the typhoid mortality among Negroes, and in some localities even higher. Racial distribution of the population, therefore, can no longer serve as an explanation for the relatively high typhoid mortality in the cities in the South Atlantic and East South Central states. The remarkable improvement in Baltimore in the past two decades should serve as a stimulus to the other cities in this group. Is there any reason why Washington should not be able to do as well as Baltimore? For three years it has lagged a little.

TABLE 4.—*Death Rates of Eighteen Cities in East North Central States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Canton	0.0	0.9	1.9	1.4	3.3	8.9	....	....
Evansville	0.0	1.9	0.9	6.2	5.0	17.5	32.0	35.0
Flint	0.0	1.8	0.0	1.6	4.6	22.7	18.8	46.9
Fort Wayne	0.0	2.5	1.7	4.2	12.2	7.3	....	....
Grand Rapids	0.0	0.0	1.2	1.0	1.9	9.1	25.5	29.7
Chicago	0.3	0.4	0.4	0.6	1.4	2.6	8.2	15.8
Milwaukee	0.3	0.0	0.3	0.8	1.8	6.5	13.6	27.0
Cleveland	0.5	0.2	1.4	1.0	2.9	4.0	10.0	13.7
Dayton	0.5	1.0	0.4	1.9	3.3	9.2	14.8	22.5
Indianapolis	0.5	1.6	1.6	2.7	4.6	10.3	20.5	30.4
Detroit	0.6	0.5	0.7	1.3	4.1	8.1	15.4	22.8
Cincinnati	0.9	3.0	0.4	2.5	3.2	3.4	7.8	20.1
Peoria	0.9	1.8	1.8	0.2	3.7	5.7	16.4	15.7*
South Bend	1.0	0.0	0.0	....	....	....	....	....
Akron	1.1	0.4	1.5	1.5	2.4	10.6	21.0	27.7*
Toledo	1.3	0.7	2.0	2.0	5.8	10.6	21.4	37.5
Columbus	1.7	1.7	2.4	2.1	3.5	7.1	13.8	40.0
Youngstown	2.3	1.1	1.7	1.1	7.2	19.2	29.5	35.1

* Incomplete data.

TABLE 5.—*Death Rates of Six Cities in East South Central States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Louisville	1.9	2.9	2.6	3.7	4.9	9.7	19.7	32.7
Chattanooga	3.2	8.0	1.6	8.0	18.6	27.2	35.8*	....
Birmingham	4.0	2.5	3.0	8.0	10.8	31.5	41.3	41.7
Knoxville	7.1	8.0	7.3	10.7	20.6	25.3*	....	....
Memphis	7.6	11.4	7.3	9.3	18.9	27.7	42.5	35.2
Nashville	7.6	7.6	3.2	18.2	17.9	20.7	40.2	61.3

* Incomplete data.

The cities of the East North Central group (table 4) again lead all other sections of the country in having the lowest typhoid average of any geographic division and increase their 1932 lead over the New England cities. Five cities in this group (Canton, Evansville, Flint, Fort Wayne and Grand Rapids) have perfect scores, and Chicago, Milwaukee and Cleveland are not far behind. All but five of the eighteen cities in this division have rates less than 1.0, and the highest is only 2.3.

The six cities of the East South Central states (table 5), with a population about one-eighth as great as the eighteen cities of the East North Central division, have registered a larger number of typhoid deaths in 1933 (77 East South Central, 68 East North Central) and a typhoid rate nearly ten times as high; viz., 4.91 in contrast to 0.55 (table 12). Some improvement over 1932 is, however, manifested particularly by Chattanooga and Memphis. The Nashville rate remains surprisingly high for the second year in succession. The racial analysis of Nashville typhoid for 1932, already referred to, shows that the typhoid mortality in the white population in that city was nearly double that among the Negroes. Only one other American city on our list (New Orleans) exceeded Nashville in 1933 in its typhoid rate. Nashville, nevertheless, is showing marked improvement over the period 1916-1930, when hardly any typhoid reduction occurred (table 5).

TABLE 6.—*Death Rates of Nine Cities in West North Central States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Minneapolis	0.2	0.8	0.6	0.8	1.9	5.0	10.6	32.1
Omaha	0.5	1.4	1.8	1.3	3.3	5.7	14.9	40.1
Kansas City, Kan.	0.8	0.0	1.6	1.7	5.0	9.4	31.1	74.5*
Duluth	1.0	1.0	1.0	1.1	1.7	4.4	10.8	45.5
St. Paul	1.4	0.7	1.1	1.4	3.4	3.1	9.2	12.8
Wichita	1.7	1.7	0.0	1.2	6.3	....	....	....
Des Moines	2.0	0.0	0.0	2.1	2.5	6.4	15.9	25.7
St. Louis	2.2	1.2	2.0	2.1	3.9	6.5	12.1	14.7
Kansas City, Mo.	7.4	1.4	1.5	2.8	5.7	10.6	16.2	35.6

* Incomplete data.

TABLE 7.—*Death Rates of Eight Cities in West South Central States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Tulsa	0.0	0.0	2.0	0.3	16.2*	....	....	....
El Paso	2.0	5.6	4.0	9.1	10.6	30.7	62.8	....
Oklahoma City	3.4	3.9	5.6	7.4*	....	....	....	....
Houston	4.0	3.7	3.2	4.8	7.6	14.2	38.1	40.5*
San Antonio	4.9	3.6	4.2	4.6	9.3	22.2	29.5	35.9
Dallas	5.3	7.4	7.3	7.3	11.7	17.2	....	....
Fort Worth	7.6	2.9	5.4	5.9	6.1	16.3*	11.9	27.8
New Orleans	9.1	8.6	13.9	9.9	11.6	17.5	30.9	35.6

* Incomplete data.

TABLE 8.—*Death Rates of Eleven Cities in Mountain and Pacific States from Typhoid per Hundred Thousand of Population*

	1933	1932	1931	1926-1930	1921-1925	1916-1920	1911-1915	1906-1910
Portland	0.0	0.6	1.0	2.3	3.5	4.5	10.8	22.2
Salt Lake City	0.0	0.7	1.4	1.9	6.0	9.3	13.2	41.1
San Francisco	0.1	1.5	1.4	2.0	2.8	4.8	11.6	28.3
Long Beach	0.4	0.0	0.0	1.1	2.1*	....	....	....
Los Angeles	0.6	0.6	0.7	1.5	3.0	5.6	10.7	19.0
Oakland	0.7	1.0	1.0	1.2	2.0	3.8	6.7	21.5
Seattle	0.8	1.1	0.5	2.2	2.6	2.9	5.7	25.2
Spokane	0.9	1.7	0.8	2.2	4.4	4.9	17.1	50.3
Tacoma	0.9	1.8	0.9	1.8	3.7	2.9	10.5	19.0
Denver	2.7	0.7	3.4	2.6	5.3	5.8	12.0	37.5
San Diego	4.3	0.6	0.6	1.0	1.6	7.9	17.0	10.8

* Incomplete data.

The cities in the West North Central states (table 6) did not fare quite as well in 1933 as in 1932, five of the nine showing a typhoid increase and two a stationary rate. Kansas City, Mo., indeed recorded a typhoid mortality nearly as great as the average for 1926-1930. Since a large proportion of deaths among nonresidents is reported by this city, conditions just outside the

political boundaries evidently need looking into. Minneapolis and Omaha in this group have remarkably fine records.

The eight cities in the West South Central states (table 7) show on the average a slight increase over the preceding year, although Tulsa maintains its perfect record and El Paso shows a substantial decrease. Fort Worth and San Antonio, however, have not done so well, the former recording the highest rate it has had for a number of years. It is not a good advertisement for a section of the country interested in attracting visitors in search of health to have the large cities in the Southwest afflicted with the highest average typhoid rate in the country, as was the case in 1933 (table 12).

The cities in the Mountain and Pacific states (table 8) average slightly less than in the preceding year, but the rates range more widely. Portland and Salt Lake City report no typhoid deaths and San Francisco a rate of only 0.1. San Francisco is rivaled only by Pittsburgh in its remarkably low typhoid rate among cities of more than 500,000 population. San Diego reports its highest rate (4.3) for a decade or more. While such a figure does not perhaps indicate an epidemic, there is evidently something that needs looking into in that vicinity. Denver also reports a relatively high rate, with notable fluctuations in the past three years. Nearly all the other cities in this geographic division show a more or less substantial decline, and the rate for the group as a whole shows a slight but gratifying decrease.

TABLE 9.—*Death Rates from Typhoid in 1933*

Honor Roll: No Typhoid Death (Sixteen Cities)

Canton	Grand Rapids	Salt Lake City
Elizabeth	Lynn	Tulsa
Evansville	Paterson	Utica
Fall River	Portland	Waterbury
Flint	Reading	Yonkers
Fort Wayne		

First Rank: from 0.1 to 1.9 Deaths per Hundred Thousand (Fifty-Two Cities)

Pittsburgh	0.1	Long Beach	0.6	South Bend	1.0
San Francisco	0.1	Los Angeles	0.6†	Akron	1.1†
Boston	0.2†	Philadelphia	0.6	New Haven	1.2*
Minneapolis	0.2	Springfield	0.6	Providence	1.2†
Buffalo	0.3†	Bridgeport	0.7	Toledo	1.3
Chicago	0.3†	Oakland	0.7	Jacksonville	1.4
Jersey City	0.3	Albany	0.8	St. Paul	1.4
Milwaukee	0.3†	Kansas City, Kan.	0.8	Richmond	1.6†
Rochester	0.3*	Seattle	0.8	Columbus	1.7†
Baltimore	0.4†	Cincinnati	0.9†	Wichita	1.7
Newark	0.4	Erie	0.9	Cambridge	1.8
Cleveland	0.5	New York	0.9	New Bedford	1.8
Dayton	0.5*	Peoria	0.9*	Syracuse	1.8
Indianapolis	0.5	Spokane	0.9	Tampa	1.8†
Omaha	0.5	Tacoma	0.9	Louisville	1.9†
Worcester	0.5*	Duluth	1.0*	Somerville	1.9
Detroit	0.6	Lowell	1.0	Wilmington	1.9
Hartford	0.6				

Second Rank: from 2.0 to 4.9 (Eighteen Cities)

Des Moines	2.0	Miami	2.7†	Washington	3.6
St. Louis	2.2	El Paso	2.8†	Norfolk	3.8†
Youngstown	2.3	Chattanooga	3.2	Birmingham	4.0†
Kansas City, Mo.	2.4†	Camden	3.3*	Houston	4.0
Trenton	2.4†	Oklahoma City	3.4	San Diego	4.3†
Denver	2.7	Scranton	3.4†	San Antonio	4.9

Third Rank: from 5.0 to 9.9 (Seven Cities)

Dallas	5.3	Fort Worth	7.6	Nashville	7.8
Atlanta	6.0†	Memphis	7.6†	New Orleans	9.1†
Knoxville	7.1				

* All the typhoid deaths reported were stated to be in nonresidents.
† One third or more of the reported typhoid deaths were stated to be in nonresidents.

TABLE 10.—*Number of Cities with Various Typhoid Death Rates*

	No. of Cities	10.0 and Over	5.0 to 9.9	2.0 to 4.9	1.0 to 1.9	0.1 to 0.9	0.0
1910-1910	77	75	2	0	0	0	0
1911-1915	79	58	19	2	0	0	0
1916-1920	94	22	32	30	0	0	0
1921-1925	89	12	17	48	12	0	0
1926-1930	92	3	10	30	37	12	0
1926	91	9	13	28	30	15	6
1927	92	6	10	29	27	13	9
1928	92	5	9	29	22	17	10
1929	92	2	9	21	27	25	8
1930	93	2	6	30	23	22	10
1931	93	2	6	23	29	22	11
1932	93	1	7	15	29	29	14
1933	93	0	7	18	19	33	16

TABLE 11.—*Total Typhoid Rate for Seventy-Eight Cities, 1910-1933* *

	Population	Typhoid Deaths	Typhoid Death Rate per 100,000
1910	22,573,435	4,657	20.54
1911	23,211,341	3,950	17.07
1912	23,855,260	3,132	13.14
1913	24,457,989	3,285	13.43
1914	25,091,112	2,781	11.08
1915	25,713,346	2,434	9.47
1916	26,257,550	2,191	8.34
1917	26,865,408	2,016	7.50
1918	27,686,660†	1,924†	6.73
1919	27,735,861†	1,511†	4.15
1920	28,244,878	1,088	3.85
1921	28,859,882	1,141	3.95
1922	29,473,286	993	3.36
1923	30,087,439	959	3.16
1924	30,701,614	943	3.07
1925	31,315,508	1,079	3.44
1926	31,929,782	897	2.84
1927	32,545,986	949	1.89
1928	33,158,150	628	1.89
1929	33,772,234	537	1.59
1930	34,386,717	504	1.61
1931	35,137,915	563	1.60
1932	35,490,815	442	1.24
1933	35,491,815	423	1.192

* The following fifteen cities are omitted from this table because data for the full period are not available: Canton, Chattanooga, Dallas, Fort Wayne, Jacksonville, Knoxville, Long Beach, Miami, Oklahoma City, South Bend, Tampa, Tulsa, Utica, Wichita, Wilmington.
† Data for Fort Worth lacking.
‡ The rate for the ninety-three cities in 1933 is 1.24 (total population 37,733,512, typhoid deaths 470), whereas in 1930 the corresponding rate was 1.64, in 1931 it was 1.60 and in 1932 it was 1.34.

TABLE 12.—*Total Typhoid Death Rate per Hundred Thousand of Population for Ninety-Three Cities According to Geographic Divisions*

	(1932) Population	Typhoid Deaths 1933	Typhoid Deaths 1932	Typhoid Death Rates 1933	1932	1931	1926-1930	1925
New England	2,601,305	18	19	0.69	0.73	1.07	1.31	2.48
Middle Atlantic	13,038,369	102	128	0.78	0.97	1.06	1.40	2.97
South Atlantic	2,375,507	55	53	2.31	2.23	4.29	4.56	7.01*
East North Central	9,759,609	54	68	0.55	0.70	1.00	1.29†	2.22†
East South Central	1,242,360	61	77	4.91	6.20	4.09	8.31	13.00
West North Central	2,730,700	41	28	1.51	1.03	1.34	1.83	3.43
West South Central	1,961,700	106	102	5.40	5.20	6.97	7.32‡	13.08‡
Mountain and Pacific	4,025,700	33	35	0.82	0.87	1.07	1.80	2.33

* Lacks data for Jacksonville and Miami.
† Data for South Bend for 1925-1929 are not available.
‡ Lacks data for Oklahoma City in 1926.
‖ Lacks data for Oklahoma City.

so well, the former recording the highest rate it has had for a number of years. It is not a good advertisement for a section of the country interested in attracting visitors in search of health to have the large cities in the Southwest afflicted with the highest average typhoid rate in the country, as was the case in 1933 (table 12).

The cities in the Mountain and Pacific states (table 8) average slightly less than in the preceding year, but the rates range more widely. Portland and Salt Lake City report no typhoid deaths and San Francisco a rate of only 0.1. San Francisco is rivaled only by Pittsburgh in its remarkably low typhoid rate among cities of more than 500,000 population. San Diego reports its highest rate (4.3) for a decade or more. While such a figure does not perhaps indicate an epidemic, there is evidently something that needs looking into in that vicinity. Denver also reports a relatively high rate, with notable fluctuations in the past three years. Nearly all the other cities in this geographic division show a more or less substantial decline, and the rate for the group as a whole shows a slight but gratifying decrease.

In 1933, for the first year since our summaries were undertaken, no city in the United States registered a typhoid mortality rate greater than 10 per hundred thousand (table 10). Sixteen of the ninety-three cities had no typhoid deaths at all in 1933, the largest number of cities yet reported with a perfect score. The American people can congratulate themselves that the improvement in typhoid mortality is still going on. This is substantiated by the figures in table 11, in which it is shown that the typhoid rate for 1933 reached the lowest point ever registered. It should be noted also

that the improvement probably is actually somewhat greater than the figures indicate, since the 1932 population estimate is used without making any allowance for possible increase. From the figures given in this table, a notable saving of life has resulted from the campaign against typhoid in the past twenty-three years. It is a little surprising, however, to find what a marked improvement is still taking place; the typhoid mortality rate in American cities of more than 100,000 population is now less than half what it was only seven years ago.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

H. A. CARTER, Secretary.

BURDICK WATER-COOLED LAMPS ACCEPTABLE

The Burdick Corporation, Milton, Wis., manufactures quartz mercury vapor arc water-cooled lamps which are recommended for therapeutic use when local application of ultraviolet radiation is required. Several models were considered. They are as follows:

Self-Contained Mobile Water-Cooled Unit, Receptor Model
LW-505 for Alternating Current
LW-205 for Direct Current

Suspension Casing Model Self-Contained Unit
LW-510 for Alternating Current
LW-210 for Direct Current

Suspension Casing Model Faucet Type Water-Cooled Unit
LW-531 for Alternating Current
LW-231 for Direct Current

Receptor Model Faucet Type Water-Cooled Lamp
LW-530 for Alternating Current
LW-230 for Direct Current

The water-cooled unit, that is, the lamp proper, consists essentially of a quartz mercury vapor arc burner surrounded by a double wall casing, between the walls of which cold water circulates to cool the lamp. A small circular quartz window in the casing permits the passage of ultraviolet and visible radiation but practically eliminates the heat radiation. The quartz window looks like a small crystal drum and the hollow space is filled with highly distilled water. This distilled water does not come directly in contact with the circulating water. The radiant heat passing through the window is largely absorbed by the distilled water and transparent quartz and is conducted to the circulating water through the periphery of the quartz drum. Then the excess heat in the lamp is carried away either by water circulating in the radiator, which in turn is dissipated to the air, or by tap water circulating through the lamp from a faucet. When running, an indicator shows instantly whether water is circulating. It is possible, therefore, to use the lamp in close approximation to the affected or injured part and to apply pressure against the soft parts to facilitate greater penetration of the ultraviolet radiation.

Burdick Water-Cooled Lamp.

All models use the same type of lamp and burner. The difference in the models depends on the accessories. The Self-Contained Mobile Water-Cooled Unit, receptor model, is provided with a cabinet which has a movable door located in the rear, thus making the unit accessible for lubrication or draining of the water system. This unit is mounted on four ball-bearing casters with solid rubber-tired wheels and can be moved about the hospital or physician's office easily.

The Suspension Casing Model Self-Contained unit is essentially the same as the previously described unit. In addition it is supplied with a special counterbalanced upright, to which the lamp is attached. The Suspension Casing Faucet Type Water-Cooled unit is essentially the same as the last mentioned unit, except that the cooling water supply is obtained from a faucet connection. The Burdick Receptor Model Faucet Type Water-Cooled Lamp contains all the essential features of the "mobile" type, differing in that the cooling water is obtained from a faucet of the local water supply.

ELECTRICAL CHARACTERISTICS

Alternating Current
Line voltage, 105 to 120 volts (60 or 25 cycles)
Line starting amperage, 17.5 amperes
Line operating amperage (5 amperes, 220-volt line)
(7.5 amperes, 115-volt line)
Operating amperage of burner, 4.5 amperes
Burner voltage always kept at 55 by means of manual voltage regulator. (There is therefore no maximum or minimum burner voltage, as it is kept at 55 volts.)

Direct Current
Line voltage, 105 to 120 volts
Starting amperage, 10 amperes
Operating amperage (120 volts, 4.5 amperes)
(220 volts, 4.5 amperes)
Burner voltage always kept at 55 by means of manual voltage regulator.

One unit was examined in a clinic acceptable to the Council. The report of this investigation indicated that the claims made for the device were in agreement with the Official Rules of the Council on Physical Therapy. The Burdick Water-Cooled Lamps, therefore, are eligible for inclusion in the list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

DIPHTHERIA TOXOID, ALUM PRECIPITATED (REFINED).—(See THE JOURNAL, Feb. 24, 1934, p. 605; and New and Nonofficial Remedies, 1934, p. 393).

Lederle Laboratories, Inc., Pearl River, N. Y.

Refined Diphtheria Toxoid (Alum Precipitated)-Lederle.—Prepared from diphtheria toxin the L+ dose of which is 0.2 cc. and which has been detoxified with 0.2 and 0.4 per cent solution of formaldehyde to make diphtheria toxoid. The toxoid is refined by precipitation with a 4 per cent solution of potassium aluminum sulphate, washed with sterile physiological solution of sodium chloride and resuspended in the same menstruum. It is preserved with Merthiolate 1: 10,000. The product is tested for antigenic potency according to the method prescribed by the National Institute of Health: guinea-pigs, weighing 500 Gm., given one human dose must produce at the end of six weeks at least two units of diphtheria antitoxin in each cubic centimeter of blood. Marketed in packages of one 1 cc. vial (one immunization), ten 1 cc. vials (ten immunizations), and one 10 cc. vial (ten immunizations).

MERCURIC SUCCINIMIDE (See New and Nonofficial Remedies, 1934, p. 293).

Ampules Solution Mercury Succinimide ⅛ grain (0.01 Gm.) 1 cc.: Mercuric succinimide N. N. R. 0.01 Gm. benzyl alcohol 0.01 cc., and glycerin 0.013 Gm., in sufficient distilled water to make 1 cc.

Prepared by the Cheplin Biological Laboratories, Inc., Syracuse, N. Y. No U. S. patent or trademark.

SOLUBLE STOMACH EXTRACT-FAIRCHILD.—A concentrated extract of material derived from mammalian stomach mucosa. It is marketed in vials containing approximately 3 Gm. of substance representing material derived from 100 Gm. of fresh stomach mucosa.

Actions and Uses.—Soluble stomach extract-Fairchild is proposed for oral administration in the treatment of pernicious anemia.

Dosage.—This is determined by the condition of the patient. Ordinarily, the contents of from three to six vials (approximately 8 to 16 Gm.) are given daily in cool fluids. The maintenance dose is determined individually for each patient.

Manufactured by Fairchild Bros. & Foster, New York. No U. S. patent or trademark.

Soluble stomach extract-Fairchild is a light buff-colored powder possessing the characteristic odor and taste of preparations of this type. It is almost completely soluble in cold water.

To prepare soluble stomach extract-Fairchild the entire stomach mucosa is ground to a fine pulp directly into water. The resulting mixture is adjusted to a *p*H of 1.8; submitted to a temperature of 38 C. for a period of about six hours and then partially neutralized to a *p*H of 5. The resulting product is clarified by filtration and dried in vacuum at low temperature.

TRIBASIC CALCIUM PHOSPHATE (See New and Nonofficial Remedies, 1934, p. 134).

Ucoline Calcium Phosphate Cocoa Wafers: Each wafer contains tribasic calcium phosphate-N. N. R., 0.585 Gm. (9 grains), cocoa 0.65 Gm. (10 grains), powdered sugar 0.3 Gm. (5 grains), starch 0.021 Gm. (⅓ grain) and saccharin 4.8 mg. (1/150 grain), flavored with coumarin, vanillin, oil of peppermint, and salt.

Prepared by Ucoline Products Company, Chicago. No U. S. patent or trademark.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

MERCUROSTICKS NOT ACCEPTABLE FOR N. N. R. AND CAUSTICKS, CAUSTICK APPLICATORS AND SPECIAL CAUSTICK APPLICATORS (SILVER NITRATE 75 PER CENT), CUPRICSTICKS, CUPRIC APPLICATORS AND SPECIAL CUPRIC APPLICATORS (COPPER SULPHATE 20-25 PER CENT), STYPSTICKS, STYPSTICK APPLICATORS AND SPECIAL STYPSTICK APPLICATORS (ALUM 75 PER CENT AND POTASSIUM NITRATE 25 PER CENT) OMITTED FROM N. N. R.

Some years ago the Council accepted for inclusion in New and Nonofficial Remedies a line of "medicated sticks" for application of various medicaments, manufactured by the Tappan Zee Surgical Company and marketed under the names Causticks, Caustick Applicators and Special Caustick Applicators (Silver Nitrate 75 per cent), Cupricsticks, Cupric Applicators and Special Cupric Applicators (Copper Sulphate 20-25 per cent), Stypsticks, Stypstick Applicators and Special Stypstick Applicators (Alum 75 per cent and Potassium Nitrate 25 per cent).

In 1928 the firm presented an additional medicated stick under the name "Mercurosticks" stated to bear a tip of solidified mercurochrome-H. W. & D. The Council held that the name was not sufficiently informative, since it might be applied to any mercury preparation, and the Tappan Zee Surgical Company was informed that the product would be acceptable under the name "Mercurochromesticks." The firm took no action to make the product acceptable. During the examination of the material recently sent by the firm in connection with the reconsideration of other products of its manufacture, a label for "Mercurosticks" was discovered. The firm was reminded of the Council's action with regard to Mercurosticks and was asked to make a statement for the Council's information. The firm replied, in effect, that it could not give up the coined name "Mercurosticks." The Council therefore declared the product unacceptable for New and Nonofficial Remedies because it is marketed under an insufficiently descriptive name.

In accordance with the Council's custom, the Tappan Zee Surgical Company was informed of the Council's action but made no reply. A second letter, which unfortunately lacked sufficient postage, was sent the firm and was returned endorsed with a facetious remark. Convinced that some irresponsible person had made the endorsement, the Council's Secretary sent a registered letter, thinking thereby to reach some responsible person in the concern. This letter was refused. Meanwhile, the Council had reaccepted the products of the firm, the acceptance of which had expired. No acknowledgment was received of the notification sent the firm of this reacceptance. Refusal of a firm to receive correspondence from the Council makes it impossible for the Council to check adequately the claims made for the firm's product.

In view, therefore, of the unwarranted refusal of the Tappan Zee Surgical Company to cooperate with the Council, the Council concluded that continued recognition of its products is impossible. The Council therefore reaffirmed its rejection of Mercurosticks and omitted from New and Nonofficial Remedies the accepted products of the firm; namely, Causticks, Caustick Applicators and Special Caustick Applicators (Silver Nitrate 75 per cent), Cupricsticks, Cupric Applicators and Special Cupric Applicators (Copper Sulphate 20-25 per cent), Stypsticks, Stypstick Applicators and Special Stypstick Applicators (Alum 75 per cent and potassium nitrate 25 per cent).

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

FAIRWAY BRAND IODIZED TABLE SALT

Distributor.—Twin City Wholesale Grocer Co., St. Paul and Minneapolis.

Packer.—Morton Salt Company, Chicago.

Description.—Table salt containing 0.023 per cent of potassium iodide, 0.1 per cent of sodium carbonate and 0.7 per cent of magnesium carbonate. Same as Morton's Iodized Salt, THE JOURNAL, Feb. 18, 1933, page 499.

Claims of Manufacturer.—For all table and cooking uses of salt. The added sodium and magnesium carbonates tend to preserve its free running qualities. Used daily as the only salt on the table and in cooking, it richly supplements the iodine of diets deficient in that element and thus helps to protect against goiter caused by insufficient iodine in the diet.

(1) BRIMFULL BRAND CRYSTAL WHITE SYRUP
(2) BRIMFULL BRAND AMBER TABLE SYRUP

Distributor.—H. A. Marr Grocery Company, Denver, Colo.; Enid, Okla.; Omaha, Neb., and Amarillo, Texas.

Manufacturer.—Wheeler-Barnes Company, Minneapolis.

Description.—(1) A table syrup; corn syrup flavored with rock candy syrup. Same as White Oak Brand Crystal Table Syrup, THE JOURNAL, Oct. 15, 1932, page 1353.

(2) A table syrup; corn syrup flavored with refiners' syrup. Same as Golden Oak Brand Amber Syrup, THE JOURNAL, Dec. 3, 1932, page 1948.

Claims of Manufacturer.—For table use and as a carbohydrate supplement for milk modification in infant feeding.

E-JAY BRAND UNSWEETEND EVAPORATED STERILIZED MILK

Distributor.—E. J. Evans Company, Van Wert, Ohio.

Packer.—Amboy Milk Products Company, Amboy, Ill.

Description.—Canned, unsweetened evaporated milk, the same as Amboy and Melody Brands Unsweetened Evaporated Sterilized Milk (THE JOURNAL, May 7, 1932, p. 1655).

TRUPAK APPLE SAUCE

Distributor.—Haas Brothers, San Francisco and Fresno, Calif.

Packer.—Lyndonville Canning Company, Inc., Lyndonville, N. Y.

Description.—Canned apple sauce prepared from peeled and cored apples with added sucrose. Same as VB (Visscher Brothers) Old Fashioned Apple Sauce, THE JOURNAL, Aug. 6, 1932, page 476.

Claims of Manufacturer.—A slightly sweetened apple sauce for table use.

SUNKIST PANCAKE FLOUR
BLEACHED

Manufacturer.—Maney Milling Company, Omaha.

Description.—Self rising flour containing first clear wheat flour, corn, rye and rice flours, dried skim milk, dextrose, calcium acid phosphate, salt and sodium bicarbonate.

Manufacture.—The ingredients are thoroughly mixed in a batch mixer and automatically packed in cartons.

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SATURDAY, MAY 19, 1934

LYMPHATICS OF THE SKIN

The part played by lymphatics in various skin phenomena and in skin physiology is generally recognized. Yet knowledge of lymphatics to a large extent has been anatomic, based mostly on the delicate technic of injecting the fine lymphatics in living animals or in dead human tissue. Though a new world of fine anastomosing network of channels was thus revealed, it was only a first step in the knowledge of lymphatic behavior. Observations of living channels is of greater importance and has in fact been extensively achieved on human blood capillaries. Functional knowledge of the capillaries has thus advanced rapidly, especially with the aid of the motion picture camera. The blood capillary is visible and the red corpuscles coursing through bring it into bold relief under appropriate conditions, so that the living channels can be studied directly. The lymphatics, on the other hand, are invisible, for their lumens are filled with fluid of the same color and nature as the surrounding tissue juice. Lymphatic channels may be seen, to be sure, when they are inflamed as the beaded red streaks of acute lymphangitis, but normally they are hidden. Hence functional knowledge of them has been indirect and based largely on observations on lower animals.

Recently the lymphatics of living human skin have been directly visualized and their behavior has been studied in a striking way. Hudack and McMaster,[1] working at the Rockefeller Institute of New York, have published observations made on themselves and on others by the use of several vital dyes of various diffusibilities following the original use of such colored substances some years ago by Rous.[2] They have found that intradermal injections with a fine needle tear open the tiny lymphatics, which then readily absorb the solution and are rendered plainly visible. Under the microscope and especially with the motion picture camera a vivid view of these dye-filled channels is revealed, and their behavior under various conditions can be watched. Within a minute or two a minute plexus of extensively anastomosing channels in the superficial layer of the corium is seen. Some of the dye occasionally escapes into the deep lymphatics. While this superficial lymphatic plexus has been described before by anatomists, it was supposed to represent local areas, each acting independently. With the technic mentioned, the wide connections of these anastomosing plexuses were observed for the first time.

The rapidity of lymph flow in these vessels was extraordinary, an observation contrary to the work of previous investigators, who reported that there is almost no lymph flow from a resting limb. With the more nearly ideal conditions used by the New York workers, i. e., normal unanesthetized living human tissue, it was found that dye introduced into the resting forearm reached the axilla within a few minutes. Thus the local injection rapidly became a general one. Since the technic was essentially that used clinically in any intradermal test, it must be assumed that such injections likewise are not local ones, as so often assumed, but may reach the general circulation rather quickly. Individual differences in the rapidity of lymph flow also were observed and may prove to be of some significance.

Further physiologic observations concerned the permeability of these tiny channels. It was found that the human lymphatic walls act essentially as a semipermeable membrane, behaving in fact the same as similar vessels in the mouse. The similarity has the practical value of permitting many of the observations in the lower animal to be applied to the solution of human problems in this field. In both species, changes in permeability of the visualized lymphatics are great and rapid. Thus the effect of injury increases this permeability tremendously. Even the slight wheal produced in certain persons by the stroke of a blunt instrument on the skin causes the dye to pass through the lymphatic wall almost as if no barrier existed. Heat, ultraviolet rays and bacterial products have a similar effect. So does histamine. On the other hand, once a wheal is formed it may so compress the lymphatics as to interfere mechanically with the drainage and absorptive function, which becomes so accelerated during moderate inflammation.

Serums and bacterial products are daily being injected into the skin of patients for diagnostic or therapeutic purposes. The great rôle of the skin in resistance to infection is also realized and emphasized, for the skin presents, so to speak, the first line of defense against the outside world of pathogenic bacteria. Skin diseases in general present many and varied problems. In all these fields the part played by the lymphatics must be an important one. The vital dye technic furnishes a new tool for the investigation of these problems. The fundamental observations here noted point the way to a more complete understanding of skin phenomena in

1. Hudack, S. S., and McMaster, P. D.: The Lymphatic Participation in Human Cutaneous Phenomena, J. Exper. Med. **57**: 751 (May) 1933.

2. Rous, Peyton: Relative Reaction Within Living Mammalian Tissues, J. Exper. Med. **41**: 739 (June) 1925.

general and hence may prove applicable to the important field of immunity and resistance. The relative ease of their use would seem to make these dyes of wide value in the clinical investigations of the physiology and pathology of the skin.

NERVOUS STIMULATION TO LACTATION

The unique place occupied by milk in nutrition has been adequately established. Both experimental and practical studies have repeatedly demonstrated that the peculiar chemical constitution of milk admirably fits it for its essential rôle in the feeding of the young. It is to be expected, therefore, that more than usual attention should be devoted to the biologic circumstances surrounding its elaboration. Lactation is part of the reproductive process both by mechanism and by purposeful association. The mammary gland first enlarges during puberty, and at each successive estrous cycle there is a response in the structure of the gland. From this circumstantial evidence it appears that these changes occur in response to hormone stimulation. This so-called physiologic hypertrophy as well as that produced experimentally in the intact virgin female, spayed female and intact or castrated male by injection of ovarian hormone obtained from the follicle, placenta or pregnant urine consists primarily of an enlargement of the duct system without proliferation of the milk-secreting cells. With parturition, however, there occurs a stimulation to actual secretion; from the anterior pituitary there has been prepared a hormone, prolactin, presumed to be the agent that promotes the activity of the secreting epithelium in the gland whose ducts and supporting tissue have previously been enlarged and thus prepared for the production of milk. Studies on the functional activity of transplants of the mammary gland indicate that the prolactin acts independently of the nerve supply.

Once the milk flow is established, it is well known that its continuance ordinarily depends on the removal of the secretion. The mechanism that correlates the act of milking with the production of additional prolactin and the consequent secretion of more milk has not been clear. In a recent report, Selye [1] describes experiments which indicate that the act of suckling plays an important part in prolonging the active secretion of milk. In studies with rats it was observed that removal of the young from the lactating mother resulted in a disappearance of milk in from three to five days. However, if the main duct was cut without injuring the nipples, the act of suckling by the young stimulated the secretion of milk to the point of turgidity and rupture of the alveoli. Removal of all the nipples with the consequent absence of suckling led to early cessation of function and atrophy of the glands; yet if some of the nipples were left intact, even though the main duct was cut, all the alveoli secreted actively. These observations lead to the conclusion that the act of suckling is a nervous stimulus to milk secretion, motivated indirectly through the pituitary. Furthermore, it appears that it is the withdrawal of this stimulus which is responsible for cessation of milk production rather than accumulation of milk in the alveoli.

Evidence indicating that the act of suckling by the young exerts a general nervous response has been cited by Parsons.[2] In studies on lactating females it was observed that the act of suckling was followed by rises in the urea concentration in the blood, often of considerable magnitude. As the extent of these changes in the blood was not always related to the quantity of milk withdrawn, it was interpreted to mean that suckling produced an emotional response in the mother. It is currently believed that mechanical stimulation plays a part in the secretory activity of many glands, notably certain of those in the gastro-intestinal tract. It has not been determined whether there is usually a hormone involved in the mechanism, though this appears more than likely in view of the foregoing observations on milk production.

1. Selye, Hans: Am. J. Physiol. **107**: 535, 1934.

2. Parsons, Helen T.: J. Biol. Chem. **88**: 311 (Aug.) 1930.

SYPHILIS IN PREGNANCY

The increased emphasis on the diagnosis and treatment of syphilis during pregnancy, manifest in current medical literature,[1] may be considered an indication of past neglect of this significant topic. Accurate statistics on the incidence of syphilis in private obstetric practice are lacking. Even allowing for a much lower rate than is shown elsewhere, however, it is apparent that meticulous attention should be given to syphilis in all pregnancies without exception.[2] Among the clinic class of patients the frequency of syphilis in pregnancy varies, largely dependent, apparently, on geographic and racial factors. Thus, in a recent summary [3] of the incidence reported by various authors, there was a variation from 1.2 per cent from the University of Oklahoma to 34 per cent among colored in Atlanta. In general, however, from 5 to 10 per cent of pregnant women (white clinic class) are syphilitic. The percentage is noticeably higher among the Negroes. Corroboratory evidence is presented by Cole and his collaborators [4] in studies based on 3,817 syphilitic women in five cooperating clinics. Of the 603 of this group who experienced pregnancy during or after treatment for their infection, 277 were white and 326

1. Reinberger, J. R., and Toombs, P. W.: The End Results of Ten Years' Study of Treatment of Pregnancy Syphilis in Trimesters, South. M. J. **26**: 532 (June) 1933. Beckers, R.: Syphilis et gestation, Bruxelles-méd. **30**: 1521 (Oct. 22) 1933. Vigne, P., and Trillat, P.: De l'emploi systématique des examens sérologiques dans une consultation prénatale, L'avenir méd. **30**: 261 (Nov.) 1933. Philipp, E., and Richter, W.: Lues und Geburtshilfe, München. med. Wchnschr. **80**: 1540 (Oct. 6) 1933.

2. Keyes, E. L.: The Importance of Establishing a Conditioned Reflex "Pregnancy-Syphilis" in the Minds of the Medical Profession, Am. J. Obst. & Gynec. **26**: 71 (July) 1933.

3. Ingraham, N. R., and Kahler, J. E.: The Diagnosis and Treatment of Syphilis Complicating Pregnancy, Am. J. Obst. & Gynec. **27**: 134 (Jan.) 1934.

4. Cole, H. N., and others: Syphilis in Pregnancy, Venereal Disease Information, U. S. Public Health Service **15**: 83 (March) 1934.

were colored. It was noted that there was a higher percentage of latent cases of syphilis among the colored than among the white, thus suggesting either neglect on the part of the colored in seeking early and adequate treatment or a high incidence of symptomless infection in Negresses.

The difficulties in the way of diagnosis of syphilis in pregnant women are more apparent than real. From the history and physical examination alone the diagnosis can be made in from 25 to 64 per cent of the cases.[3] Routine use of serologic methods, preferably before, during and after pregnancy, materially increases the proportion of correct diagnoses. Even in the presence of the disease the serologic reaction is of important prognostic significance. Thus a negative Wassermann reaction in syphilitic mothers during pregnancy insures a higher percentage of living and apparently nonsyphilitic children than does a negative Wassermann reaction before the pregnancy.[4]

The relation of time of diagnosis and initiation and character of treatment on the ratio of miscarriages, stillbirths and syphilitic children has been the subject of numerous investigations. In a group of 268 pregnancies reported by McKelvey and Turner[5] in which the mother had not received treatment either before or during pregnancy, 45.9 per cent resulted in a stillborn infant and 54.1 per cent were born alive. Among the living infants in whom the ultimate status was known, 35.4 per cent were normal and 64.5 per cent were demonstrated clinically or at necropsy to have syphilis. Rising from this group with poor prognosis from the standpoint of the child, statistics are available showing an improving outlook depending on the stage of pregnancy in which treatment is instituted. Thus, 78 per cent of pregnant syphilitic mothers in whom treatment was instituted before the fifth month bore living, apparently nonsyphilitic, children as contrasted with only 61 per cent when treatment was started later. There were, moreover, more than three times as many syphilitic children in the latter group as in the former.[4] The adequacy of antisyphilitic treatment has an additional significance. When ten injections of an arsenical and ten of a heavy metal were given before the fifth month of the pregnancy, living, apparently nonsyphilitic, children resulted in 91 per cent of the cases. When much of the arsenical and little of the heavy metal was used, the percentage of nonsyphilitic children fell to 85, and when little arsenical and much heavy metal was employed, to 75.[4] The best results are therefore obtained when adequate treatment consisting of both an arsenical and a heavy metal is instituted early. Still better results occur when antisyphilitic treatment is given both before and during pregnancy.[5]

These observations are applicable in private practice as well as in the clinic. The woman of child-bearing age should be given the best possible chances of having a living, healthy child. Careful history and physical examination of every pregnant woman, with syphilis in mind, should certainly not be omitted. Routine serologic tests preferably before, and certainly as early as possible in, pregnancy should invariably be performed.

5. McKelvey, J. L., and Turner, T. B.: Syphilis and Pregnancy, J. A. M. A. **102**: 503 (Feb. 17) 1934.

Current Comment

THE LIPIDS OF EPITHELIAL TISSUE

Epithelial tissue not only is a protective covering but also appears to have a metabolism of its own. The lipid fraction of this tissue seems to be intimately associated with definite important aspects of this metabolism; recent investigations indicate that the secretion of lipids is characteristic of all epithelial tissue and contains a relatively high proportion of sterols. The experiments of Sperry and Angevine[1] have demonstrated this fact for intestinal mucosa; Schönheimer and Hrdina[2] have found large amounts of sterols in the secretion of the colon. Further evidence for a production of unsaponifiable lipids by the intestinal epithelium is reported by Bürger and Oeter.[3] These investigators analyzed the mucosa of the large bowel and concluded that the sterol content was not sufficient to support the view that the high concentration of these substances in the feces is due to desquamated mucosa; a secretion of sterols by the intestine was therefore postulated. The important functions that have been assigned to these lipids of the epithelial tissue emphasize the value of more specific information concerning their chemical nature. Of particular interest are the fatty substances of the skin; the fact that the latter contain a precursor of vitamin D is sufficient to warrant their detailed study. In addition, the germicidal or immunologic properties of the skin and the maintenance of the normal physical state of this tissue have been related to its content of fat. An investigation of the chemical composition of the lipids of the skin has been reported from the Washington University School of Medicine in St. Louis.[4] Analyses were made of both the fatty material of the surface of the skin and that from the stratum corneum; the most striking finding was the high concentration of unsaponifiable material. Of the latter group of substances, the sterols represented two thirds of the total in the case of the stratum corneum lipids and slightly less than half of the unsaponifiable fraction of the superficial skin lipids. The saponifiable fractions were characterized by a high content of free fatty acids, in contrast to the relatively small amount of uncombined fatty acids found in most body tissues. These results are additional evidence of the excretion of lipids by epithelial tissues; they suggest important metabolic functions and chemical importance for these substances and show the need for further fundamental knowledge concerning the chemistry of epithelial tissue.

1. Sperry, W. M., and Angevine, R. W.: J. Biol. Chem. **96**: 769 (June) 1932.
2. Schönheimer, R., and Hrdina, L.: Ztschr. f. physiol. Chem. **212**: 161, 1932.
3. Bürger, M., and Oeter, H. D.: Ztschr. f. physiol. Chem. **184**: 257, 1929.
4. Engman, M. F., and Kooyman, D. J.: Lipids of the Skin Surface, Arch. Dermat. & Syph. **29**: 12 (Jan.) 1934.

EMBRYONIC TISSUE "ORGANIZERS"

The rapidly increasing knowledge of the intrinsic growth factors in embryonic tissue cells has suggested numerous working hypotheses in many fields of clinical research. For example, its application has led to the apparently successful production of quasimalignant conditions in frogs. Embryologists have found that growth and differentiation of early embryonic tissues are determined largely by intracellular "organizers" or chemical "inductors." These local growth hormones are thermostable, resembling in this particular certain organ-specific lipoids.[1] In some embryonic tissues these inherent growth factors are held in check by relatively unstable chemical "inhibitors,"[2] which resemble serum complement in that they can be inactivated by heat or by other deleterious factors. Such inactivation releases the previously latent local growth stimulants. Making use of this lability, Witschi[3] of the University of Iowa zoological laboratory allowed frog's eggs to undergo spontaneous degeneration for from three to five days before fertilization. Certain of the growth inhibitors were apparently lost or inactivated by this process. From these senile or overripe eggs, atypical frog embryos developed. These were characterized by low grade cellular differentiation and by a tendency to tumor formation, melanotic cell masses, for example, being found in internal organs. Since such senile embryos rarely live more than two weeks, Witschi resorted to the expedient of transplantation into normal tadpoles. These tadpoles afterward developed into mature frogs. Most of the transplants underwent degeneration. A few, however, remained alive. Aggressive, invasive tumor growth took place in the peritoneal cavities, with secondary nodules occasionally appearing in distant organs or tissues. The transferable cell masses, therefore, had properties simulating malignancy.

1. Organ-Specific Lipoids, editorial, J. A. M. A. **97**: 1628 (Nov. 28) 1931.
2. Holtfreter, J.: Naturwissenschaften **21**: 766, 1933.
3. Witschi, Emil: Proc. Soc. Exper. Biol. & Med. **27**: 475 (March) 1930; **31**: 419 (Jan.) 1934.

Association News

THE CLEVELAND SESSION

Alumni Dinner of Washington University School of Medicine

The alumni dinner of the Washington University School of Medicine will be held on Tuesday evening, June 12, at 6:30, at the Hotel Statler.

Alpha Omega Alpha Lecture at Annual Session

The annual Alpha Omega Alpha dinner and lecture will be held in Cleveland at the Hotel Statler on Thursday evening, June 14. The speaker, Dr. Lewellys F. Barker (Baltimore), will discuss the life of Dr. William H. Welch.

Dinner of Section on Orthopedic Surgery

The annual get-together dinner of the Section on Orthopedic Surgery will be held at the Westlake Hotel, Rocky River, Ohio, Wednesday evening, June 13, at 7:30. This will be preceded by a lake ride, yachts leaving East Ninth Street Pier, which is about two blocks east and one-fourth mile north of the Auditorium Building, for Rocky River at 6 o'clock. In case of inclement weather, Westlake taxicabs will leave the Carter Hotel, Prospect Avenue near East Ninth Street, at 6:30. For those who do not wish to take the lake ride, suitable transportation will be provided.

Tickets will be for sale at $2 at the meeting hall in the Auditorium.

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15 Central daylight saving time (4 o'clock Eastern standard time, 3 o'clock Central standard time, 2 o'clock Mountain standard time, 1 o'clock Pacific standard time).

The next three broadcasts will be as follows:

May 21. Disease by Air, W. W. Bauer, M.D.
May 28. The Family Medicine Chest, Morris Fishbein, M.D.
June 4. The Hazards of Summer, Morris Fishbein, M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, Central daylight saving time. The next three broadcasts will be as follows:

May 24. Character of a Quack, Morris Fishbein, M.D.
May 31. Health Slogans, W. W. Bauer, M.D.
June 7. The First Month, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Rural Health Service.—Dr. Ira O. Church, health officer of Alameda County, has appointed Dr. Luther Michael district health officer to serve San Leandro and a large part of the unincorporated territory surrounding that city; Dr. Paul E. Dolan, health officer of Livermore, the rural district of Murray Township, within which Livermore is located; Dr. Richard Heinz, health officer of Pleasanton, Pleasanton Township; Dr. Elmo M. Grimmer, Irvington, Washington Township, and Dr. John A. Azevedo, that portion of Eden Township which surrounds Hayward, while Nelson C. Clemens, D.V.M., continues as health officer of that city. All district officers are serving the county health department without financial reimbursement.

COLORADO

Society News.—A tissue study conference, devoted to "Pathology of the Thyroid Gland," was held by the Colorado Society of Clinical Pathologists, April 21, led by Drs. William C. Black and George Z. Williams, Denver. Dr. Richard W. Whitehead gave an illustrated lecture in the evening on "Newer Advances in Endocrinology." The next meeting of the society will be held in October.——Dr. George B. M. Baker, Rocky Ford, addressed the Crowley County Medical Society at Ordway, April 11, on "Orchitis: Its Cause and Treatment."——At a meeting of the El Paso County Medical Society, April 11, speakers included Drs. Alfred L. Briskman, Colorado Springs, on "Arterial Hypertension: Its Prognostic Significance"; Bernhard B. Gloeckler, Colorado Springs, "Multiple Sclerosis"; Frank T. Stevens, Colorado Springs, "Differential Diagnosis in Multiple Sclerosis," and Von H. Brobeck, Colorado Springs, "The Eyes in Multiple Sclerosis."——Dr. Roy E. Davis, Pueblo, discussed onchocerciasis before the Pueblo County Medical Society, April 17.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—H. R. 6130 has been reported to the House, with recommendation that it pass, proposing to prevent misrepresentation and deception in the sale of milk and cream in the District of Columbia.

Society News.—The Washington Urological Society was addressed, April 30, by Drs. John H. Morrissey and Moses Swick, New York, on "Phases of Prostatic Resection" and

"Excretion Urography," respectively.——Speakers before the Washington Medical and Surgical Society, March 26, included Dr. Joseph F. Elward on "X-Ray Diagnosis of Gastric Carcinoma." Dr. John C. Eckhardt, among others, addressed the society, recently, on "Calcium in Asthma."

ILLINOIS

Dr. Williams Honored.—The Adams County Medical Society held a banquet in honor of Dr. William W. Williams, Quincy, March 12, in recognition of his completion of fifty years in the practice of medicine. Dr. Nathaniel G. Alcock, Iowa City, presented a floral tribute on behalf of the University of Iowa College of Medicine, where Dr. Williams graduated in 1884, and Dr. Philip H. Kreuscher, Chicago, president, Illinois State Medical Society, presented a gold watch on behalf of the Adams County Medical Society. Dr. Williams has practiced in Quincy for thirty-nine years. On the scientific program, Dr. Alcock discussed resection of the prostate, and Dr. Kreuscher, backache.

Society News.—Dr. David C. Todd, St. Louis, recently addressed the Macoupin County Medical Society in Carlinville on the economic side of the general practice of medicine.——At a meeting of the Franklin County Medical Society in Benton, April 26, speakers included Dr. Max S. Wien, Chicago, on "Relation of Dermatology to General Medicine."——Drs. George T. Palmer, Springfield, and George H. Vernon Jr. discussed "Blood Sedimentation in General Practice" before the Christian County Medical Society in Taylorville, April 18.——At a meeting of the Jefferson-Hamilton County Medical Society in Vernon, April 12, Dr. James A. Warner, St. Louis, spoke on treatment of bacterial diseases.——A symposium on cancer was presented before the La Salle County Medical Society in La Salle, April 25, by members of the staff of Washington University School of Medicine, St. Louis: Drs. Isaac Y. Olch, James Barrett Brown and Nathan A. Womack.

Chicago

United Medical Service, Inc., Sued.—Quo warranto proceedings were instituted, May 12, in the Superior Court, Cook County, by the attorney general of Illinois, questioning the right of the United Medical Service, Inc., 23 East Jackson Boulevard, to engage in the corporate practice of medicine under the provisions of the medical practice act of Illinois. The United Medical Service, Inc., was organized as an Illinois corporation and chartered, Dec. 15, 1930, with an authorized capital stock of $40,000 (THE JOURNAL, Oct. 8, 1932, p. 1267). Dr. Joseph G. Berkowitz, formerly director of the Public Health Institute, is president of United Medical Service, Inc.

Society News.—Dr. George H. Weaver was elected president of the Society of Medical History of Chicago, May 2; Dr. David J. Davis, vice president, and Dr. Irving S. Cutter, secretary.——Speakers before the Chicago Orthopedic Club, May 11, were Drs. Marcus H. Hobart on "Myositis Ossificans"; Ferdinand C. Seidler, "Fracture Dislocation of the Shoulder," and Henry Bascom Thomas, "Undifferentiated Osteogenic Sarcoma."——The Chicago Gynecological Society was addressed, May 18, by Drs. James E. Fitzgerald on "Management of Pregnancy in Women with Heart Disease," and Lester E. Frankenthal Jr., "The Cardiac Patient in Pregnancy, with a Report of a Case of Coronary Occlusion During Pregnancy." Among others, Drs. Leonard E. Markin and Leon Bloch will speak before the Chicago Society of Allergy, May 21, on "Allergic Colitis."——Speakers before the Chicago Ophthalmological Society, May 21, will review a century of progress in ophthalmic therapeutics, ophthalmic teaching and ophthalmic surgery; they will be Drs. Oscar Dodd, Evanston, Ill., William E. Gamble, Los Angeles, and Harry Woodruff, Joliet, Ill.——Dr. Percival Bailey will discuss "Peculiarities of Tumors of the Nervous System in Infants and in Childhood" before the Chicago Pediatric Society, May 22.

INDIANA

Tuberculosis Meeting.—Dr. Merlin H. Draper, Fort Wayne, was elected president of the Indiana Tuberculosis Association at the twenty-third annual meeting in Indianapolis, April 17-18. Speakers at the scientific sessions included:

Dr. Harry E. Kleinschmidt, New York, Can Modern Medicine Abolish Tuberculosis?

Dr. Harvey L. Murdock, Fort Wayne, When Should Hygiene Treatment of Tuberculosis Be Concluded?

Dr. Paul D. Crimm, Evansville, Illustrated Demonstration of Thoracic Surgery.

Dr. Willis D. Gatch, Indianapolis, Surgery in the Treatment of Tuberculosis.

Society News.—Dr. Robert B. Osgood, Boston, addressed the Fifth District Medical Society in Terre Haute, May 4, on "Treatment of Arthritis."——Dr. Edward A. Oliver, Chicago, will address the Tenth District Medical Society, May 29, on "Diagnosis and Treatment of Some of the Commoner Skin Diseases."——Dr. William F. Hughes, Indianapolis, discussed common diseases of the eye before the Cass County Medical Society in Logansport, April 20.——At a meeting of the Posey County Medical Society in New Harmony, April 12, Dr. Thomas F. Reitz, Evansville, spoke on coronary occlusion.——The Porter County Medical Society was addressed in Valparaiso, April 24, by Dr. Herbert E. Landes, Chicago, on genito-urinary diseases.

IOWA

Society News.—A recent meeting of the Boone-Story County Medical Society in Nevada was addressed by Drs. Homer S. Elmquist, Cambridge, and George J. Severson, Slater, on "Diseases of the Blood" and "Purpura Hemorrhagica," respectively.——Speakers before the Calhoun County Medical Society in Rockwell City recently were Drs. Oscar R. Prettyman, Manson, and Louis E. Eslick, Rockwell City, on urinalysis and general practice, respectively.——Dr. Clifford J. Barborka, Chicago, addressed the Clinton County Medical Society in Clinton, recently, on "Present Conception of the Relation of Diet to Health and Disease."——Dr. Frederick L. Nelson, Ottumwa, addressed the Davis County Medical Society in Bloomfield in March on "Diagnosis of Surgical Urology."——The March meeting of the Sac County Medical Society was addressed, among others, by Dr. Fred L. Knowles, Fort Dodge, on "Care of Fractures of the Neck of the Femur."——At a meeting of the Scott County Medical Society in Davenport, recently, Dr. Carl A. Hedblom, Chicago, spoke on "Treatment of Pulmonary Abscess and Empyema."——Dr. Charles Mayo, Rochester, Minn., will discuss "Glandular Regulators of Physiologic Activity" before the Linn County Medical Society, Cedar Rapids, June 7.

KANSAS

Society News.—Dr. Don Carlos Peete, Kansas City, discussed "Myocarditis, with Special Reference to Myocardial Damage Resulting from Influenza" before the Douglas County Medical Society, recently.——At a meeting of the Shawnee County Medical Society, recently, Dr. Merritt Paul Starr, Chicago, spoke on "Treatment of Pernicious Anemia." April 2, Dr. John A. Crabb, Topeka, spoke on "Synergistic Bacterial Gangrene of the Abdominal Wall," and Mr. Ross L. Laybourn, bacteriologist, "Problems in the Transmission of Bacterial Disease."——Speakers before the Wyandotte County Medical Society, Kansas City, May 1, included Dr. Lee V. Hill on "Diagnosis and Treatment of Infections of the Hand, with Anatomical Demonstrations."

KENTUCKY

Survey of Syphilis.—The bureau of venereal diseases of the state board of health has announced a survey of prenatal and congenital syphilis in counties throughout the state, to be made by a field nurse in cooperation with county health departments, practicing physicians and civic groups. Efforts will be made to have all cases brought under treatment, either by family physicians or by health officers, the latter confining themselves to the indigent.

University News.—About fifty rare medical books, principally on diseases of the lungs and of the skin, were recently given to the University of Kentucky by a senior student, Ralph G. Edwards. The books were formerly the property of physicians in his family and their publication dates range from 1820 to 1840. Another gift consisted of 175 volumes of medical works, note and account books of the late Dr. John W. Crenshaw, Versailles, presented by his daughter. A third gift of 100 volumes was given by Dr. John C. Lewis, Lexington, son of the late Dr. John A. Lewis, Georgetown. It includes several volumes of early transactions of the Kentucky State Medical Society and copies of the *Richmond and Louisville Medical Journal* from 1871 to 1876.

LOUISIANA

State Medical Election.—Dr. Courtland P. Gray Sr., Monroe, was chosen president-elect of the Louisiana State Medical Association at its annual meeting in Shreveport in April, and Dr. Stanford Chaille Jamison, New Orleans, was inducted into the presidency. Vice presidents elected are Drs. Marcy J. Lyons, New Orleans, Joseph M. Gorton, Shreveport, and Rhett G. McMahon, Baton Rouge, and Paul T. Talbot, New Orleans, was reelected secretary.

MASSACHUSETTS

Health Education Session.—The New England Health Education Association will convene for its annual conference, June 1-2, at the Massachusetts Institute of Technology, Boston. Among others, Dr. Wilson G. Smillie, professor of public health administration, Harvard University School of Hygiene and Public Health, will discuss present stage of research into the cause of the common cold, and Prof. Eduard C. Lindeman of the New York School of Social Science, adult health education.

Society News.—Dr. Clarence B. Gay, Fitchburg, was elected president of the Worcester North District Medical Society at its seventy-fifth annual meeting, April 25, in Fitchburg. Dr. Andrew R. MacAusland, Boston, delivered the annual oration on "Recent Trends in the Treatment of Fractures."——Dr. Richard M. Smith addressed the South End Medical Club in Boston, April 17, on "Acute Abdominal Conditions in Children."——Dr. Frederick T. Lord, Boston, was chosen president of the Massachusetts Tuberculosis League at its annual meeting, April 12. Speakers included Drs. Henry D. Chadwick, state health commissioner, and Kendall Emerson, New York.——Dr. Leybourne Stanley P. Davidson, professor of medicine, University of Aberdeen, addressed the Harvard Medical Society, April 10, on "Incidence, Etiology and Treatment of Nutritional Anemia."

MICHIGAN

Alumni Day Clinics.—The annual Alumni Day of Detroit College of Medicine and Surgery, now the Wayne University College of Medicine, will be held, June 7. Diagnostic medical clinics will be conducted by Dr. Charles P. Emerson, professor of medicine, Indiana University School of Medicine, and Dr. William C. MacCarty, director of the department of surgical pathology of the Mayo Clinic. In addition, they will hold a clinicopathologic conference, and a skin clinic has been arranged by the Detroit Dermatological Society. Dr. James W. Inches will be the principal speaker at the evening banquet, which will be a testimonial to Drs. Angus McLean, Don M. Campbell and Andrew P. Biddle. Detroit College of Medicine and Surgery was merged in January with other city colleges to form Wayne University and at that time assumed its present title.

MINNESOTA

Radiologic Meeting.—Included among the speakers at the winter meeting of the Minnesota Radiological Society at the University Hospital, Minneapolis, March 10, were the following:

Dr. Leo G. Rigler, Minneapolis, Roentgenologic Studies of Multiple Births.
Dr. John B. Eneboe, Incidence of Para-Esophageal Hernia in Pregnant Women.
Dr. Joseph T. King and Karl W. Stenström, Ph.D., Radiation Effects on Tissue Cultures of Lymph Nodes.
Dr. Jacob Sagel, Benign Strictures of the Stomach.
Dr. Kano Ikeda, Roentgen Observations on Acute Amebic Colitis.
Dr. Byrl R. Kirklin, Rochester, The American Board of Radiology.
Dr. William T. Peyton, Observations on Diagnosis and Treatment of Malignancy.

Lectureship in Honor of Dr. Carman.—An annual lectureship in radiology has been established in honor of the late Dr. Russell D. Carman, the Minnesota Radiological Society announces. It is to be known as the Russell D. Carman Memorial Lecture, and the first in the series will be given by Dr. Alexander B. Moore, Washington, D. C., at the meeting of the Minnesota State Medical Association in Duluth, July 16. At this meeting Dr. Donald C. Balfour, Rochester, will also deliver an address on the life of Dr. Carman, whose entire career was devoted to roentgenology. He held several teaching positions in his specialty and from 1913 until his death was head of the section on roentgenology at the Mayo Clinic. He was also professor of roentgenology in the Graduate School of the University of Minnesota. He served as president of the American Roentgen Ray Society and of the Radiological Society of North America.

MISSOURI

University News.—The class of 1899 of Missouri Medical College will hold a reunion at the University Club, June 9, in St. Louis. Dinner will be at six o'clock. Plans have been changed since the announcement in THE JOURNAL, May 12, p. 1578. Further information may be had from Dr. J. Clay Heinrichs, 306 North Grand Avenue, St. Louis.

Dinner for Colonel Skinner.—Col. George A. Skinner, surgeon of the seventh corps area, U. S. Army, was honored at a dinner at Hotel Melbourne, St. Louis, April 19. Colonel Skinner has been conducting an inactive duty training period for officers of the medical department of the reserve corps at St. Louis University. Speakers included Lieut. Col. Theodore P. Brookes, Col. William E. Leighton, Major Amand N. Ravold, Lieut. Col. Norvelle W. Sharpe, Major James E. Philips, Major John R. Hall, Major Lee D. Cady and Major Millard F. Arbuckle. A certificate of esteem was presented to Colonel Skinner, who will soon retire from active service.

Society News.—Dr. Willis C. Campbell, Memphis, addressed the Pettis County Medical Society at Sedalia, April 16, on "Ankylosis of Joints."——Speakers before the Linn County Medical Society recently included Drs. Charles C. Conover and Theodore H. Aschmann, Kansas City, on "Circulation of the Myocardium in Health and Disease" and "Causes and Treatment of Sterility," respectively.——At a meeting of the Caldwell-Livingston County Medical Society in Chillicothe, March 12, Drs. John H. Ogilvie and George E. Knappenberger, Kansas City, discussed hyperthyroidism and hyperemotionalism in the nervous state, respectively.——Dr. Noe F. Chostner discussed the "Diagnosis and Preoperative Treatment of Acute Appendicitis" before the Cape Girardeau County Medical Society at Cape Girardeau, March 12.

NEBRASKA

State Medical Meeting at Lincoln.—The annual meeting of the Nebraska State Medical Association will be held at the Cornhusker Hotel, Lincoln, May 22-24, under the presidency of Dr. Joseph Bixby, Geneva. Guest speakers listed on the tentative program are:

Dr. Walter L. Bierring, Des Moines, Iowa, subject not announced.
Dr. Walter A. Fansler, Minneapolis, Malignancies of the Colon.
Dr. Edwin P. Sloan, Bloomington, Ill.
Dr. Thomas G. Orr, Kansas City, Mo., Acute Peritonitis.
Dr. Clifford J. Barborka, Chicago, Diets and Disease.
Dr. Kellogg Speed, Chicago, Knee Joint Injuries.

Among Nebraska physicians on the program will be:

Dr. John V. Reilly, Grand Island, Pseudoparalysis in Childhood.
Dr. Robert Bruce Eldredge, Omaha, Intravenous Therapy in Pediatrics.
Dr. Harry H. Everett, Lincoln, Choice of Operation in Disease of the Biliary Tract.
Dr. Maurice C. Howard, Omaha, Management of Hemorrhage in Peptic Ulcer.
Dr. James Dewey Bisgard, Omaha, Treatment of Chronic Empyema.
Dr. Benjamin F. Lorance, Auburn, Federal Funds for Physicians Rendering Service to the Indigent.
Dr. Samuel A. Swenson, Oakland, Cancer, with Special Reference to Palliative Treatment.
Dr. William A. Colburn, Lincoln, Treatment of Infantile Eczema.

NEW JERSEY

Society News.—Dr. William P. Healy, New York, addressed the Atlantic County Medical Society, Atlantic City, May 11, on cancer of the female pelvic organs.——Dr. Frederick William Sunderman, Philadelphia, discussed diabetes before the Gloucester County Medical Society, Pitman, April 19.——Drs. Percy S. Pelouze, Philadelphia, and Arthur J. Casselman, Camden, addressed the Bergen County Medical Society, Hackensack, May 8, on "Gonorrhea in the Male and Its Treatment" and "Cooperation in the Control of Gonorrhea and Syphilis," respectively.——The program of the Hudson County Medical Society was presented by the staff of Greenville Hospital, Jersey City, May 1, as follows: Drs. Robert H. Stockfisch, "Neurologic Procedure for the General Practitioner," and Solomon Ben Asher, "Use of Quinidin in Heart Affections." Dr. Leo J. Ward, Elizabeth, demonstrated unusual and interesting roentgenograms.

NEW YORK

Society News.—Dr. Richard B. Cattell, Boston, addressed the Ontario County Medical Society, Clifton Springs, April 10, on diagnosis and treatment of carcinoma of the colon.——Dr. Oswald S. Lowsley, New York, was the speaker at the annual dinner of the Geneva Academy of Medicine, April 19, on "Diagnosis and Surgical Treatment of Kidney Pathology."——Dr. Roscoe R. Graham, Toronto, Ont., addressed the Rochester Academy of Medicine, April 5, on surgical therapy in duodenal ulceration.——Drs. Andrew Macfarlane and Thomas Parran Jr. addressed the Medical Society of the County of Albany, April 25, on "The Family Physician: Past, Present and Future" and "Health Services of Tomorrow," respectively.——Speakers at the spring meeting of the Chautauqua County Medical Society, Fredonia, in March were Drs. James H. Borrell and John M. Barnes, Buffalo, on "Common Urological Conditions" and Roy G. Pfotzer, Buffalo, "What to Expect from an Electrocardiogram."——Dr. Edgar W. Phillips, Rochester, addressed the Niagara County Medical Society, March 13, on surgery in pulmonary tuberculosis.

New York City

Biggs Memorial Lecture.—The Hermann M. Biggs Memorial Lecture of the New York Academy of Medicine was given by Dr. Arthur J. Bedell, Albany, on "Causes and Prevention of Blindness," May 3.

Sydenham Hospital Adopts Group Plan.—A plan of group hospitalization to be placed in operation by fall has been announced by Sydenham Hospital. Single persons earning not more than $3,000 and married persons earning not more than $5,000 will be entitled to three weeks' hospitalization for $10 a year. Laboratory work and treatments will be furnished at cost, the maximum fee for any patient not to be more than $100 even in cases of operation. No charge will be made for use of operating room and anesthesia.

Annual Art Exhibit.—The New York Physicians' Art Club held its seventh annual art exhibit at the New York Academy of Medicine early in April. About 300 pictures were entered, but the exhibition also included sculpture, wood carving, jewelry, lithographs and etchings. About seventy physicians contributed, including Drs. Otto P. Diederich, Fresno, Calif., Isaac Seth Hirsch, Walter Beran Wolfe, Paul E. Bechet, Solomon Stan Bauch, Alpheus Freeman, Arnold Galambos, Winfred M. Hartshorn, Alfred Braun, Louis Rachlin and Henry S. Patterson.

Conference on Artificial Fever.—The fourth annual conference on fever was held at the College of Physicians and Surgeons of Columbia University, April 27, under the chairmanship of Dr. William Bierman. Among the speakers were:

Dr. Walter M. Simpson, Dayton, Ohio, Report of Progress in Artificial Fever Studies at Miami Valley Hospital.
Drs. Ferd D. Streeter and Stafford L. Warren, Rochester, Further Observations on Cases of Dementia Paralytica Treated with Artificially Induced Fever.
Drs. Bierman and Edward A. Horowitz, Results of Hyperpyrexia in Gynecologic Conditions.
Dr. Charles L. Short, Boston, General Diathermy in Treatment of Rheumatoid Arthritis.
Dr. Heinrich F. Wolf, Willard Parker Hospital, Application of Hyperpyrexia to Monkeys Infected with the Virus of Poliomyelitis.

Officers of Society for Prevention of Asphyxial Death.—The board of directors of the Society for the Prevention of Asphyxial Death elected the following officers at a meeting, March 29: Dr. Paluel J. Flagg, president; Col. Charles R. Reynolds and Dr. Pol N. Coryllos, vice presidents, and Capt. Ernest W. Brown, M. C., U. S. Navy, Washington, D. C., secretary. The board of directors has recently been reorganized with the following members:

Captain Brown.
Dr. Ethan F. Butler, Elmira, N. Y.
Dr. Coryllos.
Dr. Henry Hall Forbes, New York.
Dr. Lee M. Hurd, New York.
Dr. Chevalier L. Jackson, Philadelphia.
Dr. John Devereux Kernan, New York.
Dr. Harrison S. Martland, Newark.
Dr. Matthias Nicoll Jr., White Plains, N. Y.
Dr. Charles Norris, New York.
Dr. George Ornstein, New York.
Dr. Richard N. Pierson, New York.
Colonel Reynolds.
Dr. Royd R. Sayers, U. S. Public Health Service, Washington, D. C.
Dr. Amos O. Squire, Ossining, N. Y.
Dr. Cassius H. Watson, New York.
Dr. Joseph S. Wheelwright, New York.
Dr. Horatio B. Williams, New York.

NORTH DAKOTA

Personal.—Dr. George M. Williamson, Grand Forks, secretary, state board of medical examiners, was guest of honor at a dinner given by the Minneapolis editorial board of the *Journal-Lancet*, February 15.——Dr. and Mrs. Andrew Carr, Minot, celebrated their golden wedding anniversary recently. Dr. Carr is a past president of the North Dakota State Medical Association.

Society News.—The North Dakota Hospital Association was recently organized at Bismarck with Mr. J. T. Tollefson, Fargo, president, and Dr. Henry L. Halverson, Minot, secretary. Sixteen hospitals were made charter members.——Dr. Ruth M. Mahon, Grand Forks, addressed the Grand Forks District Medical Society, March 21, at Grand Forks, on blood dyscrasias.—Drs. William T. Peyton, Minneapolis, and Leonard W. Larson, Bismarck, discussed tumors of the breast at a meeting of the Sixth District Medical Society, Bismarck, in March.

OHIO

Dr. Bachmeyer Resigns as Dean.—Dr. Arthur C. Bachmeyer, dean of the University of Cincinnati College of Medicine for the past nine years, recently submitted his resignation, effective September 15. Dr. Bachmeyer will continue as superintendent of the Cincinnati General Hospital and as professor of hospital administration.

Society News.—A symposium on pediatrics was presented before the Summit County Medical Society, Akron, May 1, by Drs. Ray S. Friedley, James G. Kramer, Joseph M. Ulrich, William D. Lyon and Myrl M. Miller.——Dr. Walter C. Alvarez, Rochester, Minn., addressed the Academy of Medicine of Cleveland, May 18, on "Some Causes of Nervous Indigestion."—— Dr. Harry H. McClellan, Dayton, addressed the Washington County Medical Society, April 11, on "Physical Causes of Mental and Nervous Diseases."——A symposium on chronic abdominal pathology was presented before the Miami County Medical Society, Troy, April 6, by Drs. James R. Caywood and Robert D. Spencer, Piqua, and Don F. Deeter, Pleasant Hill.——Drs. Myron Eli Millhon and Howard E. Boucher, Columbus, addressed the Pickaway County Medical Society, Circleville, April 6, on medical and surgical treatment, respectively, of diabetes.—— Dr. Donald E. Yochem, Newark, addressed the Licking County Medical Society, Newark, March 30, on recent developments in diseases of the chest.——Dr. Ralph F. Massie, Ironton, discussed treatment of varicose veins at a meeting of the Hempstead Academy of Medicine, Portsmouth, April 9.——Dr. Max Cutler, Chicago, will address the Cincinnati Academy of Medicine, May 21, on "Indications and Limitations of Radium in the Treatment of Cancer."

OKLAHOMA

Society News.—Dr. Cyrus C. Sturgis, Ann Arbor, Mich., addressed the Ottawa County Medical Society in March on the anemias.——Drs. Marvin E. Stout, Oklahoma City, and Raymond G. Jacobs, Enid, addressed the Garfield County Medical Society, Enid, March 29, on "The Ruptured Appendix" and "Pelvic Inflammatory Disease Treated by the Elliott Method," respectively.——Drs. Paul C. Carson, and Ernest M. Seydell, Wichita, Kan., addressed the Kay County Medical Society, Ponca City, March 22, on heart disease in children and removal of foreign bodies by the bronchoscope, respectively.——Physicians who addressed the Carter County Medical Society, Ardmore, March 5, were Drs. Arthur W. White, Oklahoma City, on peptic ulcer; LeRoy D. Long, Oklahoma City, goiter, and Leonard S. Willour, McAlester, cooperative medicine, basic science and public health.——Drs. Hugh G. Jeter and Grider Penick, Oklahoma City, discussed anemia and pelvic tumors, respectively, before the Cleveland County Medical Society at a meeting at the state hospital, Norman, March 8.

PENNSYLVANIA

Society News.—The medical and dental societies of Delaware County were guests of the Delaware County Pharmacists' Association in Chester, May 10; mutual medical problems were discussed by Drs. Wilmer Krusen, Philadelphia, and Ralph E. Bell, Media, Harry Cornfeld, Ph.D., Collingdale, and S. B. Luckie, D.D.S., Chester.——Dr. Meredith F. Campbell, New York, addressed the Pittsburgh Urological Association, May 14, on "Lower Urinary Tract Obstruction in Infants and Children."

Philadelphia

Portrait Presented.—A portrait of the late Dr. David Bushrod James, once professor of gynecology at Hahnemann Medical College and Hospital, was presented to the college by the professional staff at a memorial meeting, April 20; Dr. Earl B. Craig, successor to Dr. James, made the presentation.

Personal.—Dr. John A. Kolmer, professor of medicine, Temple University School of Medicine, was elected director and president of the board of trustees of the Research Institute of Cutaneous Medicine, April 26. The institute was founded in 1922 by Drs. Kolmer, George Raiziss and the late Jay Frank Schamberg.——Dr. Henry B. Ingle was recently elected president of the Philadelphia alumni society of the University of Pennsylvania School of Medicine.

Premedical Requirements Raised.—The faculty of the Woman's Medical College of Philadelphia recently recommended after a study of records of its students that applicants for admission in September 1935 be required to present evidence of completion of three years of premedical college study. The corporation of the college confirmed the recommendation. Special consideration will be given to cases in which unusual ability or equivalent training may warrant exceptional action.

Society News.—"Jefferson Medical College Night" was observed at the meeting of the Philadelphia County Medical Society, April 25, with the following speakers: Drs. Baxter L. Crawford and Thomas C. Stellwagen Jr. on tumors of the kidney, and Martin E. Rehfuss and Edward J. Klopp, diseases of the gallbladder.——Drs. Francis C. Grant and Stuart N.

Rowe, among others, addressed the Philadelphia Neurological Society, April 27, on "Neurogenic Origin of Duodenal Ulcer" and "Localization of the Sleep Mechanism," respectively.

VIRGINIA

Society News.—The Norfolk County Medical Society held its annual all day clinic, April 11, at the Hospital of St. Vincent de Paul and Protestant Hospital, Norfolk. In the evening Dr. J. Shelton Horsley, Richmond, delivered an address on "Symptoms, Diagnosis and Treatment of Carcinoma of the Gastro-Intestinal Tract."——Dr. Charles Howard Marcy, Pittsburgh, was a guest speaker at the annual meeting of the Virginia Tuberculosis Association at Richmond, April 5, on "Tuberculosis in the Negro."——The Virginia Society of Otolaryngology and Ophthalmology held its annual meeting in Lynchburg, May 5, with Drs. Samuel J. Crowe, Baltimore, and John H. Dunnington, New York, as guest speakers.——Edward L. Corey, Ph.D., and Edwin P. Johnson, D.V.M., addressed the University of Virginia Medical Society, March 5, on "Physiology of the Mammalian Fetus" and "Etiology and Histogenesis of Leukosis in Fowls," respectively. Dr. Dean Lewis, Baltimore, President, American Medical Association, addressed the society, March 26, on "Hypothesis: The Relation of Chemical Syndromes to Specific Cellular Changes."——Drs. Joseph T. Buxton and Landon E. Stubbs, Newport, addressed the Warwick County Medical Society, Newport, on "Pulmonary Complication Following Surgical Operations" and "Pregnancy in Diabetes," respectively.

GENERAL

Specialties Board to Meet in Cleveland.—The recently created Advisory Board for Medical Specialties will hold its annual meeting in Cleveland, Sunday, June 10, at 6 p. m., at the Hotel Cleveland. Buffet supper will be served. This meeting is for the purpose of transacting general business concerning certification of specialists and also to receive applications from the special groups now engaged in the formation of new certifying boards in their respective specialties. Representatives of these boards making applications will be invited to attend. More detailed information as to requirements and procedure may be obtained on application to Dr. Paul Titus, secretary, Advisory Board for Medical Specialties, 1015 Highland Building, Pittsburgh.

Bequests and Donations.—The following bequests and donations have recently been announced:

Nathan Littauer Hospital, Gloversville, N. Y., $25,000 under the will of the late Millard F. Button.

Ella M. Brown Charitable Circle, which operates Oak Lawn Hospital, Marshall, Mich., $48,000 by the will of George A. Johnson.

St. Vincent's Hospital, New York, $65,000 by the will of Margaret Crane Hurlburt.

Mercy Hospital, Philadelphia, $1,000 by the will of Hannah H. Williams.

Children's Hospital, Philadelphia, will ultimately receive the most of the $160,000 estate of Mrs. Mary V. Lewis Sayres, the income to be used for maintenance.

New York Hospital, $5,000 by the will of the late Helen Jay Garretson.

Herman Knapp Memorial Eye Hospital, New York, $20,000, and Columbia University, $10,000 for biologic research by the will of the widow of Dr. Frederick Kammerer.

Cancer Hospital, Home of Calvary, Bronx, N. Y., $2,000 by the will of the late Dr. Frederick S. Dennis.

University of Pennsylvania School of Medicine, department of otolaryngology, will receive the bulk of the $40,000 estate of the late Dr. George Fetterolf.

Annual Meeting of Urologists.—The American Urological Association will hold its thirty-first annual meeting at the Claridge Hotel, Atlantic City, May 22-24. Guest speakers will be Mr. J. Swift Joly, London, England, who will give the Ramon Guiteras Lecture on "Etiology of Urinary Calculi" and Prof. Luigi Caporale, Turin, Italy, who will speak on "Experimental Researches on Ureteral Sympathectomy." Among other speakers will be:

Dr. Heinrich L. Wehrbein and Louis Nerb, Ph.D., Brooklyn, Bacteriophage in the Treatment of Kidney and Bladder Infections.

Dr. John R. Caulk, St. Louis, Cautery Punch Operation for the Removal of Obstructive Lesions at the Vesical Orifice in Women and Children.

Dr. Hugh H. Young, Baltimore, Prostatic Calculi.

Dr. Clyde Leroy Deming, Dr. Ralph H. Jenkins and Gertrude van Wagenen, Ph.D., New Haven, Conn., Endocrinological Relationships of Prostatic Hypertrophy.

Drs. Hugh Cabot, Waltman Walters and Virgil S. Counseller, Rochester, Minn., Successful Plastic Operations for Hypospadias.

Drs. Abraham Hyman and William H. Mencher, New York, Causes of Death Following Operations on the Urinary Tract.

Dr. Jose C. Ferrer, San Juan, Puerto Rico, Filariasis of the Spermatic Cord and of the Epididymis.

Sir Henry Wellcome Awarded the Remington Medal.—The fourteenth Remington Honor Medal awarded by the New York Branch of the American Pharmaceutical Association has been conferred on Sir Henry Wellcome, London. Sir Henry is a native of Wisconsin and a graduate of the Philadelphia College of Pharmacy. After establishing the firm of Burroughs-Wellcome and Company, pharmaceutical manufacturers, in London he became a British subject. He has established the Wellcome Physiological Research Laboratories, Wellcome Chemical Research Laboratories, Wellcome Historical Medical Museum, Wellcome Bureau of Scientific Research, all in London; Wellcome Tropical Research Laboratories, Gordon Memorial College, Khartoum, Africa, and the auxiliary Floating Tropical Research Laboratory on the Upper Nile. Sir Henry has also conducted ethnologic and archaeologic research. He is a member of many scientific societies in England and in 1928 received the honorary degree of doctor of laws from the University of Edinburgh. He was knighted by King George V in 1932 and has recently received the Cross of the Legion of Honor of France.

Survey of Homes for Aged.—The American Trade Council, U. S. Board of Trade, Washington, D. C., has recently made public the results of a survey of noncharitable homes for elderly persons. Twenty-eight institutions are listed in which membership may be obtained by payment of entrance fees varying from $1,000 to $7,000. They are independent or semi-independent and practically self supporting. The capacity of these homes varies from twenty to two hundred rooms and they are operated like clubs or American plan hotels. Some are under church auspices but admit men and women of other creeds than that of the sponsor. Five homes are listed in California; three each in New York, Wisconsin and Minnesota; two each in Oregon, Michigan, Indiana and Iowa, and one each in Nebraska, Salt Lake City, North Dakota, Pennsylvania, Washington and Massachusetts. Most of these homes are said to have been founded by some individual or group of persons in the communities in which they function. The American Trade Council offers its services to persons interested in selecting a home for their declining years, whether or not they are members. Inquiries accompanied by a stamped envelop for reply will receive attention if the seekers advise their age, physical and financial condition, and whether entrance to a home is for one person or for husband and wife. The address is 744 Jackson Place, Washington, D. C.

Medical Bills in Congress.—*Changes in Status:* S. 2892 has been favorably reported to the Senate, proposing to amend existing laws prohibiting the introduction of intoxicating liquor within the Indian country to permit its use as a medicine by practicing physicians for patients of Indian blood. H. R. 3464 has been favorably reported to the House, proposing to reimburse the Muncy Valley Private Hospital for medical treatment and hospital care of a seaman, U. S. Navy, who was injured while on authorized leave. The services were rendered by authority of the Bureau of Medicine and Surgery of the Navy Department but the comptroller general ruled that the government was not responsible for expenses incurred for civilian medical treatment of enlisted men of the navy and marine corps while on leave of absence. H. R. 6379 has passed the House, authorizing, under the Federal Emergency Public Works program, federal grants "to nondenominational educational institutions not operating for profit, which have received or are receiving public aid, for the construction, repair or improvement of any such project, or to nondenominational educational institutions not operating for profit for purposes and projects designed to serve the interests of the general public, such as hospitals in connection with class A medical schools or hospitals under public control such as municipal hospitals, for the construction, repair or improvement of any such project, but no such grant shall be in excess of 30 per centum of the cost of the labor and materials employed upon such project." *Bills Introduced:* S. 3560, introduced by Senator Vandenberg, Michigan, proposes to amend an act entitled "An Act to recognize the high public service rendered by Major Walter Reed and those associated with him in the discovery of the cause and means of transmission of yellow fever" so as to provide monthly payments to the father and mother of William H. Dean, deceased, who "submitted to the yellow fever tests in Cuba."

Society News.—The seventh annual meeting of the American Association of School Physicians will be held in Saratoga Springs, N. Y., June 25-28.——The annual Conference of State and Provincial Health Authorities of North America will take place, June 5-6, in Washington, D. C., followed by the Surgeon General's Conference of State and Territorial Health Officers, June 7-8.——Dr. Simeon Burt Wolbach, Boston, was elected president of the American Society for Experimental Pathology at its meeting, March 29, and Dr. Shields Warren, Boston, was reelected secretary.——William M. Clark, Ph.D.,

Baltimore, was named president of the American Society of Biological Chemistry at its annual meeting, March 29; Howard B. Lewis, Ph.D., Ann Arbor, was elected vice president, and Henry A. Mattill, Ph.D., Iowa City, secretary. The next annual session will be held in Detroit.——Dr. James Alexander Miller, New York, was chosen president-elect of the American College of Physicians at its annual meeting in Chicago, April 19. Vice presidents are Drs. James H. Means, Boston, Randolph Lyons, New Orleans, and James F. Churchill, San Diego. Dr. William Gerry Morgan, Washington, D. C., was reelected secretary-general, and Dr. William D. Stroud, Philadelphia, reelected treasurer.——Dr. Perry G. Goldsmith, Toronto, was chosen president of the American Laryngological, Rhinological and Otological Society at its recent annual meeting, and Dr. Robert L. Loughran, Bridgewater, Conn., reelected secretary.——Dr. Eugene L. Opie, New York, was elected president of the Society for Experimental Biology and Medicine at the recent annual meeting. Philip E. Smith, Ph.D., is vice president, and Abraham J. Goldforb, Ph.D., New York, secretary.——Dr. B. B. Vincent Lyon, Philadelphia, was elected president of the American Gastro-Enterological Association at the annual meeting in Atlantic City, April 30-May 1. Dr. Russell S. Boles, Philadelphia, was reelected secretary. Robert W. Hegner, Ph.D., Baltimore, delivered the Alvarez Lecture on "Pathogenic Protozoa in the United States."

FOREIGN

Robert Jones Prize Awarded.—The British Orthopedic Association has awarded the Robert Jones Prize jointly to Mr. R. W. Butler, honorary surgeon to Addenbrooke's Hospital, Cambridge, and Mr. H. J. Seddon, resident surgeon, Royal National Orthopedic Hospital, Stanmore, for their essays on Pott's paraplegia. The award was £50 and a gold medal to each.

Institute of Hygiene and Tropical Medicine.—The new building of the Belgian Institute of Hygiene and Tropical Medicine in the rue Nationale, Antwerp, including a school, library, laboratory and a research hospital with forty-eight beds, was opened, Nov. 4, 1933. It is open to all research workers and medical students. Attending the ceremony were representatives from the U. S. Public Health Service, Washington, D. C.; Harvard University, Boston; the London School of Tropical Medicine, the Wellcome Bureau of Scientific Research, the Pasteur Institutes of Paris, Algiers and Dakar, and other institutions.

Government Services

U. S. Army Reserve Corps Needs Physicians

The Surgeon General of the U. S. Army is asking the cooperation of all class A medical schools, superintendents of approved hospitals and medical societies in an endeavor to stimulate interest in the Medical Reserve in order to bring the corps up to authorized strength. The present strength of the Medical Reserve is less than 9,000, less than half the number that would be required in the event of a mobilization. An applicant for appointment must be a citizen of the United States or the Philippine Islands, between the ages of 21 and 35, graduate of a recognized medical college, must possess a license to practice in some state, territory or the District of Columbia, must be actually engaged in the practice of medicine and must meet the physical requirements of the army. If the applicant had commissioned service in the army between April 6, 1917, and June 30, 1919, he may be appointed in any section and to any grade not above the highest grade held by him at any time, provided a vacancy exists for his grade. Original appointments are made in the grade of first lieutenant and are for a period of five years, at the end of which a physician may be reappointed in his former grade or in the next higher grade, provided he has established his eligibility for promotion and a vacancy exists. Assignments are based on the officer's qualifications for the particular duty he is to perform, although due weight will be given to his desires. For promotion, the officer must have 300 hours to his credit earned during the five year period immediately preceding the date of recommendation for promotion and previous to Oct. 1, 1930, or have a certificate of capacity for the higher grade, which may be earned by passing the prescribed examination. Physicians desiring appointment should make application to the commanding general of the corps area in which they reside. Further information may be obtained from the Surgeon General, U. S. Army, Washington, D. C.

Foreign Letters

LONDON

(From Our Regular Correspondent)

April 21, 1934.

Asthma Research

The Asthma Research Council was formed in 1927 because the public, which subscribed money for investigation, was not satisfied with the fact that there was no "cure" for such a common disease. In answer to one broadcast appeal 4,000 donations, amounting to $9,000, were received. The latest report of the council states that two factors must be borne in mind in estimating the measure of success achieved by the research workers. The ultimate problem—the discovery of a cure—must be regarded as merely the small final link in a long and intricate chain of evidence as to what are the causes of this distressing complaint. The results achieved are considered satisfactory, but funds are still needed to continue the valuable work, which moves steadily, though of necessity slowly, toward the final link in the chain. Asthma clinics are maintained at Guy's Hospital, the Hospital for Sick Children, Great Ormond Street Hospital, St. Mary's Hospital, King's College and University College, London, and the General Infirmary, Leeds. At Guy's Hospital the clinic is under the general supervision of Dr. A. F. Hurst, the senior physician who is an authority on asthma, and on its staff are a physician, two physiologists, a clinical pathologist, a biochemist and a radiologist, who work in cooperation. The physician, Dr. L. J. Witts, has published in *Guy's Hospital Gazette* an important paper on allergy and asthma, based largely on the work of the clinic. He points out that asthma is only one of a family of diseases, which includes eczema, urticaria, hay fever and certain forms of dyspepsia, dependent on sensitiveness to protein substances, such as milk, eggs and the various animal and vegetable dusts. In an analysis of 500 patients who passed through the clinic, the most striking difference between the asthmatic and the normal persons were (1) the frequency of protein hypersensitiveness, as revealed by cutaneous reactions and in the personal and family history, and (2) the high incidence of morbid changes in the upper and lower respiratory tracts. Hence many hold that asthma is the result of a general factor, protein hypersensitiveness, and a local factor, damage to the respiratory tissues. But this is an incomplete explanation. As to the respiratory factor, it is generally agreed that operations on the nose produce little permanent benefit, while treatment directed at the lower respiratory tract, whether inhalations, respiratory exercises or vaccines, has only a qualified success.

ALLERGY AND ASTHMA

But it is the question of allergy that Dr. Witts now discusses at length. The high incidence of other allergic diseases among asthmatic persons, the frequency of asthma or other allergic diseases in the family history, and the considerable percentage of cases of positive skin reactions have been proved beyond doubt; but little is known of the mode of development and effect of the morbid process in asthma, and in most cases corrective measures cannot be applied satisfactorily. Dr. Witts thinks that it is unfortune that allergy should become a specialty, which in America has its exclusive practitioners and its separate journals and societies. The allergist seems to suggest that all is known about the pathogenesis and treatment of a disease when it can be shown to be associated with protein sensitivity, and he seems to regard the patient simply as an area of skin for cutaneous reactions and the injection of desensitizing agents. In no other allergic manifestation do the results of desensitization approach in success those of hay fever. Yet

with massive and expensive doses of pollen the symptoms can be ameliorated in only two thirds of the cases and complete relief given in about one third. Treatment must be repeated for several years before lasting relief is obtained. Dr. Witts' experience with specific desensitization in asthma has not been encouraging.

OBSTACLES TO DESENSITIZATION

Dr. Witts enumerates some of the obstacles to the view that the treatment of an allergic disease consists in discovering the substance to which the patient is sensitive and desensitizing him. 1. The multitude of potential allergens. There are innumerable proteins to which an asthmatic person may become sensitive and there is the problem of the 20 per cent of asthmatic persons in whom no skin reaction can be obtained. 2. Multiple sensitization. This was found at the Guy's Hospital asthma clinic in two thirds of the patients giving a positive skin reaction. 3. Difficulty in interpreting skin tests. The extreme variation in the percentage of asthmatic persons who give positive skin reactions by different technics is only one difficulty. A patient may give positive reactions to substances that do not affect him clinically and negative reactions to substances that do. Pollen reactions have been observed in patients without hay fever, and negative skin reactions to pollen in patients with hay fever. Skin tests tend to persist after clinical hypersensitiveness has disappeared. Negative skin reactions are rather frequent in patients who are sensitive to food and have severe indigestion, Henoch's purpura or eczema whenever certain foods are eaten. 4. Difficulty of desensitization. Freeman and Bray attribute such failure to inadequate dosage of the offending protein, but the fact remains that desensitization will always be a matter for the expert physician and the patient with plenty of time and money and will never be of much value for such a common disease as asthma. 5. Persistence of the morbid diathesis and development of new sensitizations. In asthma, single sensitization is unusual, specific desensitization is arduous, and the relief from it is rarely more than transitory. While the patient is being desensitized to one allergen, fresh sensitizations may develop. Children who are sensitive to food lose this disability and become sensitive to pollen or to dust. Cases beginning as hay fever and temporarily relieved by pollaccine develop asthma from other causes in the winter months. The final demonstration of the bankruptcy of the modern allergic hypothesis of asthma was left to van Leeuwen, who showed that asthmatic persons could live free from attacks in hermetically sealed rooms, fed with filtered air, but relapsed as soon as ordinary air was breathed. Burn has suggested that the allergic state is not due to the presence of unusual proteins in the blood but to deficiency in the amount of epinephrine circulating in the blood. Dr. Witts thinks that the solution of the problem of asthma will come on biochemical lines. The similarity between the effects of histamine and the symptoms of the allergic diseases, the resemblance of the action of epinephrine in asthma to proved substitution therapies, such as insulin in diabetes, and the new knowledge of the autonomic nervous system point to a promising line of attack.

A Safer Milk Supply

Sir Hilton Young, minister of health, received a deputation from the People's League of Health to urge the importance of securing a supply of clean and safe milk. Lord Moynihan said that milk was almost a perfect food but that the amount consumed in this country was much less than in many others and that there would be great advantages in increasing its consumption. Unfortunately the existing milk supply was not safe. From 3 to 15 per cent of samples were found contaminated with tubercle bacilli. Even "certified milk" had been found to contain them. Contaminated milk was also responsible for the spread of other diseases, such as undulant and scarlet fever. The chief desire of the People's League of Health was to secure the eradication of tuberculosis from cattle and to obtain a supply of clean and safe milk. But the cleaning up of herds was a long process and, for the present, milk other than "certified milk" and "grade A" (tuberculin tested) milk should be pasteurized. Dr. Lyle Cummins, professor of tuberculosis, Welsh National School of Medicine, said that much tuberculosis and a large proportion of tuberculous meningitis was due to milk-borne infection. It would be advantageous if the tuberculin testing of cattle could be carried out free of charge and if the several grades of milk could be replaced by one single grade of tuberculin tested milk. Dr. R. C. Jewesbury, a pediatrician, said that the medical profession was no longer justified in advising the use of "raw" milk for children. It was important that pasteurization should be carefully controlled.

The minister of health, in reply, stated that he was deeply grateful to the People's League of Health for the information given by the deputation. He assured its members that they were preaching to the converted. He agreed with Lord Moynihan that it was necessary to proceed simultaneously along two lines of advance: (1) to do everything possible to remove infection from herds and (2) to take steps for the protection of milk. The government was prepared to provide a sum not exceeding $3,750,000 in aid of a campaign for securing a purer milk supply. The importance of educating the public with regard to the milk supply was great and in this task the People's League of Health could be of the greatest assistance.

PARIS

(From Our Regular Correspondent)

March 28, 1934.

Goiter in France

At its last trimonthly session, held in Paris, the Assemblée de la médecine générale française discussed the documents submitted by practitioners from all the departments of France, on the subject of goiter. This is what was found: There is a general retrogression of the epidemic related to the improvement in hygiene and in drinking water. There are still permanent regional foci in the Vosges, the Jura, Alsace, the Alps and the Pyrenees. In Auvergne the endemia has retrogressed to such an extent that it is confined to families with hereditary thyroid disease. Goiter is sporadic (the Loire basin) and rare in departments along the coast (including Corsica) and in the plains in general. It is almost unknown in the departments of Nord and Pas-de-Calais. Cretinism, which was frequently observed in association with goiter, receives today little attention. On the contrary, the rural physicians reported that one finds small nodular goiters almost everywhere (particularly in Sarthe, Eure-et-Loir and Var). In the large cities, most of the small goiters are imported. Inquiry reveals frankly the existence of unsuspected foci in villages in some departments regarded as goitrigenic or otherwise. Observation of the stable population of these goitrigenic burgs directs attention to various factors, particularly the drinking water, under many different forms: iron-containing water (not only in Sarthe but also in Cher), copper-containing water (in Puy-de-Dôme), noncalcareous water (Lot, Charente, Corse), shallow water easily polluted (Haut-Rhin, Pyrénées-Orientales, Lot) and well water highly mineralized owing to passage through alluvial deposits—sometimes bacterial (Sarthe, Seine-et-Oise, Pyrénées-Orientales, Haut-Rhin). The endemia in these foci often ceases with the introduction of different drinking water (even though from goitrigenic regions: Alpes-Maritimes, Puy-de-Dôme, Hautes-Pyrénées). Retrogression of goiter has been shown to be in direct relation with the enrichment of the diet and the introduction of a greater variety of foods, notably with the use of

sea foods (Puy-de-Dôme), the discarding of an almost exclusively vegetarian diet and the introduction of more meat (Dordogne, Alpes-Maritimes) and the addition of wine to the water (Basses-Pyrénées). The influence of heredity has often been noted—on the female side in 40 per cent of the cases. Exophthalmic goiter is, on the whole, more frequent in the cities than in the rural districts. There are also regional sectors (Eure-et-Loire, Sarthe, Bouches-du-Rhône). On the other hand, vast regions are spared. Exophthalmic goiter is exceptional in agricultural regions such as Loiret, Côtes-du-Nord and Var, and in industrial regions such as Valenciennes, whereas the coast regions are more affected (Pas-de-Calais, Loire-Inférieure). Farmers have been more frequently attacked since the war (Doubs, Dordogne). In association with this condition, the practitioners often observe high emotions at various periods in the sex life of the woman. They point out also the determining rôle of infections: acute articular rheumatism, infections of adolescents, typhoid and, in general, intestinal infections of water origin. They emphasize the relations between the hyperthyreoses and tuberculosis and conclude that hyperthyroidism is not a factor of aggravation but, on the contrary, of resistance in the tuberculous person. The amelioration of exophthalmic goiter in a tuberculous person is sometimes followed by recrudescence of pulmonary tuberculosis. The treatment of hyperthyreoses, according to the general belief, should be chiefly medical. Combined with ordinary medical treatment, rest, possibly even isolation, is useful and sometimes sufficient. Physical therapy, especially radiotherapy and electrotherapy, associated with medical treatment, is being used more and more. Owing to the refinements in the technic, thyroid surgery is becoming more common as a special type of surgery. But in many departments of France it is not readily accepted.

The Identity of Various Forms of Scarlet Fever

La Société des médecins des hôpitaux de Paris discussed recently, at length, the subject of "The Identity of Various Forms of Scarlet Fever," the unanimous conclusion being that medical, puerperal and surgical scarlet fever are produced by the same micro-organism. A. Lemierre and Jean Bernard adduced proof with respect to puerperal scarlet fever, with the aid of twenty-three observations collected from their department in the Hôpital Claude-Bernard. The cutaneous exanthem was that of the typical case of scarlet fever, with a somewhat greater frequency than usual of miliary vesiculation. Three persons died, one with a syndrome of malignant scarlet fever and one with streptococcemia. Four infants hospitalized with their mother died, one from bronchopneumonia, one from streptococcic septicemia and two from erysipelas. Puerperal scarlet fever is therefore true scarlet fever, with a peculiar frequency of streptococcic manifestations. Robert Debre, G. Ramon, Maurice Lamy and Burnet found in the lochia hemolytic streptococci, with which they were easily able to produce a toxin similar to the Dick toxin, whereas the throat of the patient did not contain any hemolytic streptococci. In the ward in which the puerperal scarlet fever patients were located, an intern and a nurse contracted the disease, while a second intern developed erysipelas. They injected into the children a streptococcus toxin as a prophylactic measure, but it still had a pathologic potency, for a typical case of scarlet fever developed suddenly, with vomiting, swelling and redness of the throat and tongue, just as in ordinary scarlet fever.

Concerning surgical scarlet fever, Lemierre and Flandin reported two cases observed after appendicectomy. The Schultz-Charlton test was positive. The scarlet fever antitoxin does not appear to have convincing results. Mr. Hallé, who had observed previously, at the Hôpital des enfants malades, numerous cases of postoperative scarlet fever with frightful sequels (intestinal gangrene, gangrene of the penis after circumcision), confirmed that the malignancy of this form of scarlet fever had certainly diminished. He obtained excellent results from the use of convalescent serum. It is not necessary to exceed doses of from 10 to 20 cc.

Disturbance at the University of Paris

A recent ministerial decree changed the makeup of the council on discipline at the university. These councils consist of members elected by the students, but foreign students are seldom chosen, unless some foreign student is involved. Some fifty foreign students recently staged a demonstration before the university as a protest against what they regarded as an injustice. The disturbance was carried to the court of the Faculté de médecine, where a serious row occurred. Four students were injured and had to be given first aid before they were taken home by the police. The Association général des étudiants, which was about to hold its annual election of members to serve on its committee, was unable to convene, owing to the general excitement that prevailed as a result of this incident. The election was postponed until a later date, the old committee continuing to serve ad interim.

BERLIN

(From Our Regular Correspondent)

March 26, 1934.

Consultation Centers for Expectant Mothers

Centers for expectant mothers and for infants have existed for many years in nearly all the larger cities of Germany, but it is planned to make such aid more extensive than it has been. In 1933 in the seventy cities of more than 50,000 inhabitants there were sixty-three consultation centers for expectant mothers. In thirty-three of these cities there was only one consultation center, which does not seem adequate. In two cities there were from six to ten centers; in five cities, from eleven to thirty, and in three cities, more than thirty; Berlin, with forty-six centers, had the largest number.

Thirty-two cities report on the number of examinations made in their consultation centers. In 1933, a total of 34,700 examinations were carried out, almost exclusively by physicians, and 76 per cent of them were first examinations; that is, the majority of the women dispensed with a more frequent consultation and were content with the first definite diagnosis of pregnancy.

Welfare aid for expectant mothers and puerperants was granted in eighty-five cities. Forty-one cities grant maternity aid if the income of the family does not exceed from one to one and a half times the regular amount granted for general welfare aid. Five cities grant maternity aid even though the family income is equal to from two and a half to three times the usual amount allowed for welfare aid. Twenty-seven cities come to the aid of expectant mothers when the krankenkasse refuses aid. Other cities base maternity aid on still different criteria.

The period for which maternity aid is granted varies. In most cities (63 per cent) it is granted for ten weeks. Twenty-seven cities grant aid for an even longer time. In thirteen cities maternity aid is allowed up to twelve weeks; in fourteen cities for a period of sixteen weeks, and occasionally even longer. Only in thirty-nine out of eighty-two cities is mention made of a course of instruction for expectant mothers.

Infant welfare aid is organized on a much wider basis than maternity aid. Ninety cities have infant aid centers. The expense is borne in most cases by the city alone. In the cities covered by the report there were only 338 maternity consultation centers all told, whereas there were 922 infant consultation centers. The city of Berlin alone reports eighty-three. But not only the number of infant welfare centers is greater;

their facilities are used much more frequently and regularly. In the year under consideration, 104,550 consultations were given in the cities with more than 200,000; 48,230 consultations in the group of cities with from 100,000 to 200,000 population, and about 48,000 consultations in the cities with from 50,000 to 100,000 population. The total number of consultations was 197,660, or more than five times as many as in the maternity consultation centers. In contrast with the maternity centers, the infant welfare centers were visited usually more than once. In the latter, only 48 per cent (less than one half) of the consultations were first consultations, whereas in the maternity consultation centers 76 per cent of all cases were first consultations.

The wider utilization of the infant consultation centers is due mainly to the fact that securing the clientele is simple, as it is effected through the notification of births at the office of the registrar.

Reorganization of Scientific Societies

The Versammlungen Deutscher Naturforscher und Aerzte, as it has existed for more than a generation, has adopted a new order of business and a new constitution. The object of the new organization is to oppose the splitting up of medicine and the natural sciences into various specialties. It is proposed to emphasize the problems in which all (or at least many) branches of natural science and medicine have a common interest. At the same time, the traditional task of the society must not be forgotten; namely, to give the public an insight into the growth of German science.

The general assembly will be held only once in two years, which will necessitate using great care in the choice of topics and in applying sharp criticism to the subject matter to be presented. The scientific section as such will cover three and one-half days at the most. The board of trustees will henceforth organize only general sessions, sessions of the main scientific and medical groups, and joint sessions of several branches but no sessions of single branches. In addition, there will be evening lectures on popular scientific subjects. The topics for all sessions will be decided on by the officers of the society after consultation with the "scientific committee" and, as far as possible, with the large scientific societies representing individual specialties. In the general sessions and the sessions of the main group, scientific questions will be discussed that have either reached a reasonably definite settlement or that present a high degree of general interest. As speakers, such investigators will be chosen as have shown special merit in the fields concerned. In the opinion of the officers of the society, a general discussion the course of which no one can foresee would weaken the force of these communications and lessen the effect on the world's scientific circles; hence all discussion will be reserved for the so-called joint sessions, which will deal with topics that are of interest to the representatives of at least several of the branches of natural science or medicine and that will be presented by several speakers in the form of concise papers, to be followed by a detailed thorough discussion. In these sessions particularly the principle of combining several problems of common interest will come to the fore.

The officers of the society will not organize any professional meetings for the discussion of topics pertaining to a single branch of science or medicine. It is expressly stated that there is no place in the Versammlungen Deutscher Naturforscher und Aerzte for those persons who have no interest in anything outside their own specialty. Furthermore, no "unofficial" sessions of representatives of specialties will be allowed to disturb or take time away from the regular program as announced. Affiliated societies representing specialties will, however, be permitted to hold sessions in the convention city immediately before or immediately after the regular sessions.

The endeavors of the aforementioned society to emphasize the solidarity of the natural sciences and the medical sciences will likewise be furthered by the Zweckverband der Deutschen naturwissenschaftlichen und medizinischen Kongresse. The declared objective of this league is to create sentiment that will make for a broader organization of congresses of specialists. The propaganda will be confined to a publicity campaign and will not include any attempts to exert an immediate influence on the several societies of specialists. It is hoped that, in this manner, greater coherence will be injected into the organization of German scientific congresses as a whole.

Research on Hemostasis Following Injuries

Professor Magnus, the new occupant of a chair of surgery at the University of Berlin, addressed the Berlin Medical Society on "The Peripheral Vascular System." In his research he has been concerned with the questions How does the peripheral vascular system react to local stimuli? and Can hemostasis be made accessible to direct observation? He found capillary microscopy applied to the nail groove the most useful available method. If one injured with a needle a capillary loop in the nail groove of the human hand, an intensive hemorrhage was always produced that flooded the whole area. By producing an ischemia with an Esmarch bandage one was able to observe that the arterial system emptied its whole contents into the venous system. Because of the comparatively rude setup of the experiment and the difficulty of maintaining a bloodless condition for any length of time, by reason of the severe pain, no great progress was made by this method. Not until Magnus used the Péterfisch micromanipulator, with which he was able to cut into a sharply circumscribed spot in a capillary loop under direct vision, was his research successful. The method followed was this: In an experiment on himself he produced an ischemia in the left hand, which was enclosed in a plaster cast. A certain spot in the capillary network was selected, which was then injured and observations were instituted over a considerable period.

Is hemostasis brought about after injuries effected by contraction of the arteries or by thrombosis? Clinical observations point rather to contraction; otherwise it would be difficult to understand, when whole extremities are shot or torn off, that not infrequently one finds the stump of a vessel that is not bleeding. This observation is old, and again and again in medical history there have been periods in which artificial ligation of injuries was strongly advised against. The bleeding vessel was closed a while with the finger until it contracted; then the bleeding stopped definitively. Magnus confirmed this experimentally; while his assistant was preparing the soft parts in a lower leg amputation, he exposed the whole popliteal artery, together with its branches, and ligated it at the terminals. At first the blood was propelled rapidly to the point of ligation; but a gradual contraction was plainly recognizable, and finally the contraction became so complete that transverse incisions of the vessel without lumen could be observed. Nowhere could an obstructing thrombus be found.

Experimental injuries of the capillary loop with the micromanipulator confirm these macroscopic observations. In the film it can be noted that the vascular loop, filled originally in a normal manner with blood, undergoes a maximal contraction after the injury, becomes bloodless and is then invisible. The injured capillary perishes, as later examination reveals, and is not reformed at the same site. Future vascularization is taken over by adjacent vessels or by vessels coming forward from the deeper tissues. It appears to be proved that hemostasis following an injury does not result, as was for a long time assumed, through the formation of thrombi in the vessels, but that the vessels have the capacity to prevent bleeding by contraction of the walls.

BUENOS AIRES

(From Our Regular Correspondent)

March 15, 1934.

Black Cardiacs

Ayerza described in a lecture delivered in 1901 the clinical picture of a condition known only through his school, since the original lecture was not published. Some patients having chronic bronchial diseases come to have an intense cyanosis followed by symptoms of cardiac insufficiency. The author called these patients "black cardiacs" because of the disproportion which exists between the comparatively mild cardiac symptoms and the intense cyanosis. Dr. M. R. Castex and his collaborators have lately studied this clinical picture. The disease, which develops in three stages, bronchial, pulmonary and cardiac, is most common in man. It starts with recurrent bronchitis, usually during winter. Then the pulmonary or bronchopulmonary stage appears, with emphysema, sclerosis of the pulmonary artery and cyanosis due to insufficient oxygenation in the alveoli. There is also an increase of the alkali reserve, polyglobulism, hyperviscosity, apathy, somnolence and capillary dilatation. Cardiac insufficiency appears in the third stage of the disease. The sclerotic lesions of the pulmonary artery are secondary to hypertension in the lesser circulation. These lesions may exist without the presence of cyanosis. Their coexistence accelerates the evolution of the third stage.

Rôle of Pancreas and Suprarenals in Formation of Muscular Glycogen

Foglia, Damborsi, Fernandez and Leloir recently reported before the Sociedad Argentina de Biologia the results of studies of the rôle of the endocrine glands in the reconstitution of the muscular glycogen. After removal of the suprarenals, the hepatic glycogen rapidly decreases while the muscular glycogen is still normal within minimal limits, forty-eight hours later. Following pancreatectomy the capacity both to resynthesize glycogen after fatigue and to form it after the intravenous injection of 2 Gm. of dextrose per kilogram of body weight fails. The previous injection of suprarenal extract gives suprarenalectomized animals the capacity of forming muscular glycogen and generally they produce it in supernormal amounts. The pancreas has a similar action. The values for muscular glycogen are slightly reduced forty-eight hours after pancreatectomy, but the glycogen is not resynthesized after fatigue, as in normal animals, nor is it deposited in the muscles after the injection of dextrose in the veins. However, if insulin is injected, the capacity to resynthesize and deposit glycogen in the muscles is newly developed. The same glycogenic functions are observed by uniting the carotid artery and jugular vein of a suprarenalectomized dog to the artery and veins of an isolated or grafted pancreas. This proves that insulin regulates the capacity of resynthetization and deposition of glycogen, independent of the nervous system. After the vagus nerves of chloralized dogs and cats have been cut, both the resynthesis and the deposition of muscular glycogen remain normal. This is contrary to the opinions of Hoet, Ernould and Debois, who claimed that the resynthetization and fixation of muscular glycogen are functions of the vagus nerves and that if these nerves were cut there would not be any secretion of insulin. The liver has no specific hormonic rôle.

Fifth National Congress of Medicine

The fifth National Congress of Medicine will take place in the Faculty of Medicine and Hospital Centenario of the city of Rosario, September 4-11. Dr. C. Muniagurria is president and Drs. M. Vignoles, P. R. Omnés and J. Recalde Cuestas secretaries. The official topic to be discussed is amebiasis, with the following speakers: Drs. M. R. Castex and D. Greenway, on parasitology and clinical medicine; D. Staffieri, on extraintestinal localizations; S. Mazza, on its epidemiology, and A. Marotta, on its surgical treatment. There will be eighteen sections, each with its own topics to be discussed.

ITALY

(From Our Regular Correspondent)

Feb. 28, 1934.

Congress of Dermatology and Syphilology

At the twenty-eighth Congress of Dermatology and Syphilology, held in Pavia under the chairmanship of Professor Mantegazza, the first topic was physiopathology of the skin in relation to newer data of morphologic and physiochemical research. The subject was discussed by speakers from various Italian clinics.

Professor Tommasi of the Clinica di Palermo, who spoke on the physiology of the skin in relation to the neuro-endocrine system, emphasized that the skin is under the special control of the sympathicus; but a parasympathetic innervation has been demonstrated. The skin is the site where the external stimuli have their greatest effect on the neurovegetative system, which explains many physiopathologic happenings and is useful from the therapeutic point of view when one desires to influence the general vegetative tonus and the whole organism. The skin does not have a metasympathetic system (peripheral and autonomic ganglions) as do the viscera. The vegetative regulation of the skin of the face is independent of that of the remainder of the body but is more closely connected with the superior centers, which coordinate the higher functions. The bulbar vasodilatory center of the face is close to that of the gastromotor, which explains certain physiologic and clinical facts. Tommasi does not admit that the skin is a hormone-producing organ. The skin, however, produces various ferments and immunizing substances. There is a hormone equilibrium peculiar to every person to which, if artificially disturbed, he tends to return. The neuro-endocrine factor has great importance in dermatology and must always be regarded as present. It cannot, however, be regarded as a direct cause of any isolated dermatologic disorder properly so called. The speaker brought out the importance of this method of considering the diagnosis and treatment of dermatologic problems: The correction of the terrain with reference to exogenous causes; reducing the local sensitivity, and the removal of the irritative causes through a knowledge of the various reflexes, even of distant organs.

The second topic concerned lesions of the joints and bones in syphilis. The speaker, Professor Casazza, brought out the following conclusions: Skeletal changes of syphilitic origin are still numerous and complex. Congenital syphilis of the bones is a clinical entity. In addition to many types caused directly by the spirochete there are skeletal changes in which the action of syphilis is indirect, constituting a dystrophic cause affecting the bones. In regard to clinical observations, various points merit attention. Many syphilitic bone lesions show few signs of their existence or are concealed under obscure symptoms.

Radiology is a useful means of diagnosis. Serologic tests have value, but in certain periods and types of skeletal lesions they may be negative. The therapy of today comprises many methods of treatment, by the proper use of which rapid results may be secured, save in exceptional cases such as tabetic arthropathies.

Several further communications were offered. Hoffmann of Bonn spoke on the rapid diagnosis of recent syphilis (also primary) by means of smears from the tonsils.

The congress awarded the de Amicis prize to Prof. Mario Artom of Verona for his work on "Blood Accidents Due to Arsphenamines."

The assembly passed a resolution, to be presented to the Direzione generale di sanità pubblica, concerning the prophylaxis against syphilis, and the various serologic methods recently proposed.

Prof. Ludovico Tommasi, clinician of the University of Palermo, was chosen president of the Consiglio direttivo della Società italiana di dermatologia e sifilografia.

Professor Tanzi

Prof. Eugenio Tanzi, occupant of the chair of clinical psychiatry at the University of Florence, died recently at Salò. His first works on paranoia and delinquency opened the way to a university chair. After serving as assistant in the Clinica psichiatrica, he entered the Istituto di fisiologia in Florence. He obtained then the chair of psychiatry in the University of Florence, and his first task was to organize the clinic of San Salvi. He founded the *Rivista di patologia nervosa e mentale*, which is now in its thirty-eighth year. Of his numerous publications on psychiatry, those concerning a new theory on hallucination are frequently cited. In addition to Psichiatria forense, he published, in collaboration with Lugaro, a treatise on mental diseases, which is now in its third edition. In Florence, Tanzi founded his school, whose pupils are to found in many universities and psychiatric hospitals of Italy.

The Experimental Radio-Electric Center

Under the supervision of the minister of public education, an experimental radio-electric center has been established in Rome for the purpose of carrying on research. The center will study also the transmission and reception of electromagnetic waves.

Anthropometric Research

Dr. Scatamecchia reported recently to the Società di medicina legale in Rome the anthropometric measurements he secured from examining ninety-one cadavers of young men in connection with the determination of the constitutional type of Viola and of Barbara. Forty-two were found to be longilineal and forty-nine were brevilineal. In previous research the speaker had found few relationships between the dimensions and form of the cranium, on the one hand, and the "habitus," on the other hand. In his present research the speaker found no relation between the total size of the cranial region and the facial region, on the one hand, and that of other parts of the body. In the individual dimensions, the length of the cranial and facial regions agreed with the development of the limbs, and the width of the cranial and facial regions agreed with the width of the trunk and its segments. The form of both sections of the head, with respect to various norms, did not present any relation to that of the trunk and its parts. The speaker confirmed the views advanced by Professor Ottolenghi with respect to the accuracy of the alleged functional morphology on which Barbara based his classification of types of cranium; namely, that the cranial region follows the development of the limbs, and the facial region the development of the trunk.

Marriages

FRANCIS CURTIS DOHAN, Philadelphia, to Miss Marie Barbara Postenrieder of Mering, Germany, March 28.

JAMES FRED TERRY, Cookeville, Tenn., to Miss Margaret Katherine Harris of Union City, recently.

DUDLEY CURTIS ASHTON to Miss Myrtle Irene Cooper, both of Richmond, Va., April 3.

FLORANCE L. SULLIVAN, Freeport, Ill., to Miss Magdelen Heinl of Chicago, April 5.

ERNEST K. MCCOWN, Stanfield, Ore., to Miss Beth McKay of Scappoose, April 19.

Deaths

Benjamin Franklin Van Meter, Lexington, Ky.; Bellevue Hospital Medical College, 1897; in 1910 member of the House of Delegates of the American Medical Association; member of the Kentucky State Medical Association; veteran of the Spanish-American and World wars; fellow of the American College of Surgeons; on the staffs of St. Joseph's and Good Samaritan hospitals; aged 60; died, March 8, in Rancho Santa Fe, Calif., of pulmonary tuberculosis.

Albert Ware Nash, Dallas, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1906; member of the State Medical Association of Texas; fellow of the American College of Surgeons; formerly city health officer; served during the World War; member of the visiting surgical staff of the Parkland, Dallas Methodist and St. Paul's hospitals; on the courtesy staff of the Baylor Hospital; aged 50; died, March 11, of coronary thrombosis.

Harry Louis Abramson, St. John, N. B., Canada; Yale University School of Medicine, New Haven, Conn., 1911; chief of laboratories, New Brunswick Department of Health; member of the board of professional examiners of the Council of Physicians and Surgeons of New Brunswick; on the staff of St. John General Hospital; aged 48; died, April 17, in the Hospital of the Rockefeller Institute, New York.

Ernst Jonas ● St. Louis; Medizinische Fakultät der Friedrich Wilhelms-Universität, Berlin, Prussia, 1895; member of the Southern Surgical Association and fellow of the American College of Surgeons; on the staffs of the Jewish Hospital, St. Louis City Hospital, Jewish Home for Chronic Invalids and St. John's Hospital; aged 61; died, March 2, when he jumped from a seventeen story window.

Chauncey Boyd Griffiths, Newark, N. J.; Columbia University College of Physicians and Surgeons, New York, 1896; member of the Medical Society of New Jersey; fellow of the American College of Surgeons; aged 64; on the staff of the Hospital for Women and Children, where he died, March 23, of carcinoma of the bladder and diabetes mellitus.

Roscoe Conkling Hubbard, Tampa, Fla.; Mississippi Medical College, Meridian, 1912; past president of the Hillsborough County Medical Society; served during the World War; formerly mayor of Bushnell; aged 48; died, March 24, in the Veterans' Administration Facility, Seminole, of cerebral embolism and gangrene of the left leg.

Paul Lovejoy Holliday, Athens, Ga.; University of Georgia Medical Department, Augusta, 1917; member of the Medical Association of Georgia; past president of the Clarke County Medical Society; served during the World War; on the staff of the Athens General Hospital; aged 41; died, April 22, of heart disease.

Oakey Stitt Gribble, Clarksburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1904; member of the West Virginia State Medical Association; served during the World War; formerly superintendent of the Mason Hospital; aged 57; died, April 3, of carcinoma of the prostate with metastasis.

Levi R. Wilhelm, Blanca, Colo.; Eclectic Medical University, Kansas City, Mo., 1901; Hahnemann Medical College of the Kansas City University, 1902; county coroner, registrar of vital statistics, county physician and city health officer; aged 68; died, March 25, in the Lutheran Hospital, Alamosa, of heart disease.

DeWitt Clinton Huntoon ● Waterloo, Iowa; Rush Medical College, Chicago, 1903; past president of the Black Hawk County Medical Society; formerly police commissioner and health officer; on the staffs of the Allen Memorial and St. Francis hospitals; aged 61; died, April 17, of cerebral hemorrhage.

Edward B. Wiley, Grinnell, Iowa; Hahnemann Medical College of Philadelphia, 1882; member of the Iowa State Medical Society; formerly member of the city council and mayor; on the staffs of the Grinnell Community Hospital and St. Francis Hospital; aged 76; died, March 5, of abdominal tumor.

Jacob W. Graybill ● Newton, Kan.; College of Physicians and Surgeons, Medical Department Kansas City University, 1898; formerly county health officer, lieutenant governor and state senator; aged 62; died, March 24, in the Junction City (Kan.) Municipal Hospital, of pneumonia.

Aden Clarence Gates ● Kingston, N. Y.; Albany Medical College, 1893; on the staffs of the Kingston and Benedictine hospitals and formerly on the staff of the Ulster County

Tuberculosis Hospital; aged 72; died, April 8, of coronary thrombosis and coronary sclerosis.

Warren Buxton Stone ● Schenectady, N. Y.; Harvard University Medical School, Boston, 1899; fellow of the American College of Physicians; member of the American Society of Clinical Pathologists; aged 57; died, March 31, of cerebral hemorrhage and arteriosclerosis.

Ernest Linwood Hill, Framingham, Mass.; Dartmouth Medical School, Hanover, N. H., 1902; member of the Massachusetts Medical Society; served during the World War; on the staff of the Framingham Union Hospital; aged 55; died, April 1, of heart disease.

William Edward Hendry ● Willimantic, Conn.; Albany (N. Y.) Medical College, 1898; past president of the Windham County Medical Society; on the staff of the Windham Community Memorial Hospital; aged 60; died, March 11, of coronary thrombosis.

Charles Stewart Houghland, Milroy, Ind.; Marion-Sims College of Medicine, St. Louis, 1892; member of the Indiana State Medical Association; served during the World War; aged 62; died, April 15, in St. Vincent's Hospital, Indianapolis, of heart disease.

Joseph Peter Bouvier ● Whitinsville, Mass.; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, Que., Canada, 1905; aged 53; died, April 2, in the Woonsocket (R. I.) Hospital, of heart disease.

David Roy Nelson, Moline, Ill.; Northwestern University Medical School, Chicago, 1908; past president of the Rock Island County Medical Society; formerly coroner of Johnson County, Wyo.; aged 55; died suddenly, April 2, of heart disease.

Charles Alexander McLelland, Keyes, Okla.; Eclectic Medical University, Kansas City, Mo., 1901; Barnes Medical College, St. Louis, 1910; aged 57; died, January 26, of pulmonary tuberculosis, chronic nephritis and carcinoma of the stomach.

Robert Connery O'Neil ● Providence, R. I.; Medical College of Virginia, Richmond, 1925; on the staffs of the Memorial Hospital, Pawtucket, and the Hope and Charles V. Chapin hospitals; aged 34; died, March 21, of lobar pneumonia.

Walter Milton Babb ● Keyser, W. Va.; University of Pennsylvania School of Medicine, Philadelphia, 1893; past president of the West Virginia Public Health Council; on the staff of the Potomac Valley Hospital; aged 63; died, March 25.

William Sprague Sherman, Newport, R. I.; Jefferson Medical College of Philadelphia, 1888; member of the Rhode Island Medical Society; past president of the Newport County Medical Society; aged 72; died, February 28, of heart disease.

George Francisco Simpson, Louisville, Ky.; University of Louisville School of Medicine, 1881; member of the Kentucky State Medical Association; member of the board of education for twenty years; aged 74; died, March 26, of bronchopneumonia.

Jonas Lester Johnson, Eastland, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1897; formerly county health officer; aged 64; died, January 17, of peritonitis, following perforation of the urinary bladder.

Joseph Frank Hackett, Detroit; University of Michigan Medical School, Ann Arbor, 1924; on the staff of the Herman Kiefer Hospital; aged 35; died, April 10, in the Harper Hospital, of hypertension, chronic nephritis and uremia.

James Maxwell Hobson, Belton, S. C.; Medical College of the State of South Carolina, Charleston, 1913; member of the South Carolina Medical Association; aged 53; died, April 6, of a self inflicted bullet wound.

James Noble Garber, Detroit; Detroit College of Medicine, 1907; member of the Michigan State Medical Society; aged 65; died, April 7, in the Grace Hospital, of uremia and hypertensive cardiorenal disease.

John William Reynolds, Creston, Iowa; Kansas City (Mo.) Medical College, 1898; chairman of the state board of assessment and review; formerly mayor; aged 59; died, March 14, at Detroit, of myocarditis.

Richard L. Barrington, Washington, D. C.; Georgetown University School of Medicine, Washington, 1889; aged 69; died suddenly, April 3, in the Missouri Baptist Hospital, St. Louis, of heart disease.

George Edward Albon, Groton, N. Y.; Niagara University Medical Department, Buffalo, 1894; member of the Medical Society of the State of New York; aged 69; died, January 25, of hypernephroma.

Charles Lafayette Williams ● Greensburg, Ind.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; aged 70; died, March 10, of coronary thrombosis.

Olin A. Williams ● Butler, Pa.; Hahnemann Medical College and Hospital, Chicago, 1890; past president of the Butler County Medical Society; aged 75; died, March 29, of coronary thrombosis.

Clarence E. Huston ● Paulding, Ohio; Medical College of Ohio, Cincinnati, 1893; president of the Paulding County Medical Society; county health officer; aged 65; died, April 14, of heart disease.

Thomas Francis Burnett, Ridgewood, N. J.; Bellevue Hospital Medical College, New York, 1893; member of the Medical Society of New Jersey; aged 64; died, April 2, of bronchopneumonia.

James E. Cooper ● Cameron, W. Va.; Starling Medical College, Columbus, 1897; aged 59; died, April 15, of injuries received when the automobile in which he was driving was struck by a train.

Peter E. Wilkin, Colquitt, Ga.; College of Physicians and Surgeons, Baltimore, 1890; formerly mayor of Colquitt, and member of the state legislature; aged 67; died, February 27, of endocarditis.

Walter Charles Brady, Slatedale, Pa.; Jefferson Medical College of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 52; died, April 11, of myocarditis.

John Adams Barnette ● Watertown, N. Y.; University of Michigan Medical School, Ann Arbor, 1890; on the staff of the Mercy Hospital; aged 65; died, April 4, of cerebral hemorrhage.

Edwin B. Ellis, Streetman, Texas; Gate City Medical College, Dallas, 1907; aged 62; died, January 19, in a hospital at Corsicana, as the result of injuries received in an automobile accident.

Wilson Alpheus Smart, Clayton, Ala.; Louisville (Ky.) Medical College, 1884; member of the Medical Association of the State of Alabama; aged 72; died, April 1, of heart disease.

James Edgar Studebaker, Urbana, Ohio; Pulte Medical College, Cincinnati, 1879; aged 77; died, March 7, in a hospital at Dayton, of diabetes mellitus and abscess of the lung.

Edward Maximilian Weiss, San Francisco; University of California Medical Department, 1877; aged 78; died, March 23, of a cardiac wound self inflicted with a surgical instrument.

Charles J. Barrett, Pittston, Pa.; Columbian University Medical Department, Washington, D. C., 1887; aged 71; died, April 1, in the Pittston Hospital, of injuries received in a fall.

Horace Ward Sheldon, Berkeley, Calif.; Rush Medical College, Chicago, 1885; aged 79; died, March 12, in the Alta Bates Hospital, of cerebral hemorrhage and arteriosclerosis.

Louis Gustav Wille, New Braunfels, Texas; Tulane University of Louisiana Medical Department, New Orleans, 1892; aged 70; died, February 4, of cerebral hemorrhage.

William W. Buck, Rural Retreat, Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 77; died, March 25, of heart disease and nephritis.

Marion P. Willis, Commerce, Okla.; Kentucky University Medical Department, Louisville, 1903; aged 64; died, February 1, of uremia and nephritis.

Mervin Rives, Houston, Texas; University of Nashville (Tenn.) Medical Department, 1898; aged 58; died, March 27, of acute dilatation of the heart.

William Francis Hoeler ● Newark, N. J.; Maryland Medical College, Baltimore, 1908; aged 53; died suddenly, April 8, of heart disease.

George Herman Jennings ● Jewett City, Conn.; Long Island College Hospital, Brooklyn, 1875; aged 83; died, March 4, of lobar pneumonia.

Clark Mathew Proctor, Ames, Iowa; Rush Medical College, Chicago, 1897; aged 61; died, February 3, of angina pectoris.

Vincent Burgess, Greene, N. Y.; Kentucky School of Medicine, Louisville, 1876; aged 83; died, March 24, of senile debility.

Edwin O. Hyde, Prineville, Ore.; American Health College, Cincinnati, 1880; aged 84; died, March 19, of heart disease.

Samuel Aydelotte Billing, New Orleans; Bellevue Hospital Medical College, New York, 1897; aged 57; died, March 2.

Bureau of Investigation

IRONIZED YEAST

A "Patent Medicine" of the Get-Plump-Quick Type

The public has been made what the advertising men would call "yeast-conscious" by the extensive and intensive advertising of the Fleischmann product. The food faddists have harped for years on the theme that most of us are suffering from an iron deficiency. The facts are, of course, that as a medicine yeast has no important place except as a means of furnishing vitamin B, which ordinarily should be and would better be obtained from one's food. As for a deficiency of iron, the average American dietary, rich as it is in meat, should make such a deficiency unnecessary if not improbable. But the public is not aware of these facts, so that it is not surprising that, by plausible advertising, a "patent medicine" called Ironized Yeast has been built up into one of the best sellers in the nostrum field.

Ironized Yeast advertising is typical of the times. It plays on, and tends to create, an inferiority complex. The young woman with angular lines is led to believe that what she needs in order to obtain or retain the admiration of the opposite sex is to take Ironized Yeast. The concern that puts out Ironized Yeast has issued an advertising broadside of the tabloid newspaper type called *News Pictorial;* it is a sixteen-page affair profusely illustrated. In this we find articles bearing such captions as: "What Kind of Women Do Men Stay in Love With?"; "Husband-Stealer Beaten at Her Own Game—Wife Gets Wise to Herself in the Nick of Time—How She Won Her Man Back for Keeps"; "Skinny Spouse Told Must Figure Out Love Tangle—Court O.K.'s Hubby's Eyes for Curves"; "Real He-Men Pick 'em Plump."

The *News Pictorial* also features a "short short story." One, entitled "Was It Love or Sex?" dealt with the sad case of skinny Lina, who, on the day before she was to marry Roy, found him making love to her room-mate, Norma. The reason, of course, was that Norma had curves and Lina hadn't. Following the taking of Ironized Yeast, however, Lina developed the Mae West figure and everything was lovely. Another *News Pictorial* story of the same type was entitled "Was Her One Mistake A Sin?" Here the angular young wife finds her husband making love to her more buxom sister, so she goes home to mother, who naturally advises her to take Ironized Yeast! The skinniness disappears; "And now—thanks to Ironized Yeast—Fred and I are the happiest couple in the world."

It is a rather tragic commentary on our boasted civilization that this sort of stuff can sell anything, but it evidently does. In the newspaper advertising of Ironized Yeast, skinny versus well-developed men and angular versus well-curved women are brought into juxtaposition with the object of showing how necessary a rounded figure—and therefore Ironized Yeast—is to achieve economic or social success or marital happiness. In connection with some of the earlier illustrated advertisements, the Federal Trade Commission has expressed its opinion. In 1931 the Commission filed a complaint against J. G. Dodson of Atlanta, trading under the name of the Ironized Yeast Company. After calling attention to the fact that the Ironized Yeast advertisements claim that the product will clear the complexion, purify the blood, increase the weight and aid in digestion, constipation, rheumatism and nervousness, that there were no qualifications in these claims and the public was assured that if afflicted with the physical deficiencies mentioned, they would be cured by the use of Ironized Yeast, the Commission then cited the use of "before-and-after" pictures of persons described as having used the yeast product with beneficial results, and declared that they were not *bona fide* pictures of the same persons. The final disposition of the Commission's case has not yet (May 1934) been reported.

No "patent medicine" could be successfully advertised without the use of testimonials, and anyone familiar with the "patent medicine" industry knows how easy it is to get testimonials. In 1930 it was brought out in this department of THE JOURNAL that the Ironized Yeast Company was circularizing physicians. The letter that physicians received on the stationary of the Ironized Yeast Company was headed in capital letters "A Gift Worth $10 for You for Just a Little Information." Then the physician was asked to answer the following questions:

> "If you have ever prescribed yeast in your practice, for what disorders have you used it? What are your results in prescribing yeast for nervousness due to rundown condition; for constipation? Have you ever taken it yourself?
>
> "Have you ever prescribed yeast plus iron (to be used together), and for what symptoms? What is your opinion of this combination for increasing the appetite, weight, and as a general tonic?"

The physician was to write his experience on his own stationery and send it to the Ironized Yeast Company. In return, the company promised to send him a bottle of perfume, or, as the Ironized Yeast letter more sonorously put it, "a luxurious flaçon of exquisite French perfume—*Tout Paris de Guimet* regularly sold at $10." To the layman the appeal is different. Purchasers of Ironized Yeast find in the circular that comes in the trade package an offer of a "Beautiful Picture For Framing—Free." The picture in question is of the Stone Mountain Memorial. In order to get this "free" picture, this is what the layman must do:

> "Just write and tell us in your own words, simply and naturally, like the friendly stories on the next page, just what Ironized Yeast did for you. Tell us all the interesting details—how much weight you gained—what your friends think of your improvement—the activities you had to give up because of your poor health—any advancement, either socially or in a business way, your new health has brought you—how poor health, thinness or poor complexion once kept you back. These are the things we like to hear about. Then at the bottom tell us: 'You may use this letter in any way you like to let others know what wonderful benefits Ironized Yeast will bring to them.'"

Ironized Yeast comes in a bottle of fifty tablets costing $1—that is, the tablets cost 2 cents apiece. The public is urged to take from eight to twelve tablets a day for from two to three months. At twelve tablets daily, a dollar package will last a little more than four days. The purchaser is urged to take Ironized Yeast for three months, which would cost $21.60. The newspaper advertisements state that the company putting out the "patent medicine" guarantees results. Under the heading "Results Guaranteed," this paragraph appears:

> "No matter how skinny and weak you may be, this marvelous new Ironized Yeast should build you up in a few short weeks as it has thousands. If not delighted with the results of the very first package, money back instantly."

It takes careful reading of this alleged "guarantee" to show what it means. It will be noted that the company does not state that Ironized Yeast *will* "build you up in a few short weeks," but that it *should!* Furthermore, while the careless reader might get the impression that he could take Ironized Yeast for the three months that are recommended (at a cost of $21.60) and at the end of that time, if he is not satisfied, could get his "money back instantly," this is not what the "guarantee" says. What it does say is that he must be dissatisfied with the results of the "very first package" (one dollar's worth). As one could hardly expect a transformation from emaciation to plumpness in the four days that a package lasts, the value of the "guarantee" is obvious.

According to the Ironized Yeast advertising, the product is "made from specially cultured *brewers' ale yeast* imported from Europe"—claimed in earlier advertising to be from Bass' Ale brewery—which, it is alleged, "by a new process is concentrated 7 times." Further, this yeast "is then *ironized* with 3 kinds of strengthening iron." In some older advertising the president of the Ironized Yeast Company declared under oath that each Ironized Yeast tablet contained "the equivalent in vitamine strength of nine average yeast cakes a day." On a basis of twelve Ironized Yeast tablets a day, this would be equivalent to the vitamin value of 108 yeast cakes daily!

In the report of the Connecticut Agricultural Experiment Station issued in 1922, there was published an excellent piece of work by E. M. Bailey in collaboration with H. C. Cannon and H. J. Fisher on "The Potency of Some Commercial Vitamin Preparations as Compared With That of Dry Brewers' Yeast." Ironized Yeast was one of the preparations investigated. The various proprietary brands were not only analyzed chemically, but tested biologically. Young rats were placed on a diet lacking vitamin B. When the animal had shown a

persistent and conspicuous decline in weight, the trial unit quantity of commercial vitamin preparation was added to its diet. The duration of the test depended on the behavior of the animal. If it recovered and increased in weight, the trial was terminated when the animal had acquired its normal weight. If it did not recover but continued to decline, the proprietary vitamin preparation was withdrawn and an equal quantity of dry brewers' yeast was substituted and the recovery period made sufficiently long to demonstrate that the animal still possessed recuperative powers. In the case of Ironized Yeast there were three trial feedings. In two of the trials the animals declined and developed polyneuritis, but recovered when changed to brewers' yeast. In the third trial the Ironized Yeast contained enough vitamin B for moderate growth, but was declared by the experimenters to be distinctly inferior to brewers' yeast!

There have been various analyses made of Ironized Yeast, and the analyses vary in their results. In 1922 the State Board of Health of Kentucky reported an analysis which indicated that "the product was made up of yeast found to be inactive, starch, talc, iron as peptonate, calcium glycerophosphate, phenolphthalein and nux vomica." The ash found was given as 8.26 per cent. A commercial laboratory analyzed Ironized Yeast in 1928 and reported finding definite amounts of yeast, iron and phenolphthalein and over 45 per cent ash.

In 1928, also, the A. M. A. Chemical Laboratory analyzed Ironized Yeast and, as a result of their work, reported that each tablet did approximately contain the equivalent of:

Phenolphthalein	1/15 grain
Arsenic trioxide	1/100 grain
Ferric phosphate	1/4 grain
Calcium phosphate	1/5 grain
Calcium carbonate	1/5 grain
Yeast	4 grains

The ash in this analysis was reported to be 41.2 per cent. The state chemists of North Dakota, in Bulletin No. 40, issued in August, 1933, gave the results of an analysis of Ironized Yeast. They, too, reported finding iron, yeast and phenolphthalein, with an ash percentage of 31.18.

Following the analysis made in the A. M. A. Chemical Laboratory, a letter was received from the Ironized Yeast Company in April, 1930, criticizing the Association's findings. According to this letter, "The daily dose of Ironized Yeast is equivalent to 7 grains of iron in the form of organic and inorganic iron; 220 grains of yeast and yeast concentrate; 3/5 grain phenolphthalein." The Ironized Yeast Company declared in this letter that its product contained no form of arsenic whatever. The company stated, also, that its product contained no iron phosphate, but did contain, as already quoted, iron in other forms. It was declared, too, that it contained no calcium phosphate or calcium carbonate, but it did "contain double silicate of aluminum."

Summed up, it appears that Ironized Yeast is essentially yeast with small amounts of iron and phenolphthalein. The concern which sells it has attempted to obtain testimonials from physicians by offering them a bottle of perfume and testimonials from the general public by the promise of a picture. The Ironized Yeast advertising carries the impression that by taking the preparation undernourished and angular women can in a few weeks' time (usually three) be transformed into examples of rounded buxomness while skinny men, by the same method, can undergo a similar transformation.

Correspondence

FURTHER NOTE ON A CASE REPORTED AS HYPERCHOLESTEREMIA ASSOCIATED WITH HEPATOSPLENOMEGALY AND NEPHROSIS

To the Editor:—In a previous report (THE JOURNAL, Aug. 24, 1929, p. 604) I described a case of hypercholesteremia associated with hepatosplenomegaly and nephrosis. The outstanding clinical features were an enormously enlarged liver, filling almost the entire abdomen, and the symptom complex of nephrosis, as indicated by albuminuria, hypoproteinemia and hypercholesteremia. Biopsy of a lymph node showed the presence of foam cells. Although no chemical evidence of lipoid substance was obtained, the underlying anatomic cause for the clinical symptoms was considered to be a general metabolic disorder manifested by deposition of lipoid material in the viscera. The subsequent course of this case and the unusual conditions found at autopsy, which are to be reported in full by Gerber in the *Archives of Pathology*, necessitate this supplementary note.

The author's clinical report was made while the patient was still alive. The patient subsequently returned to the hospital complaining of severe lumbosacral pain. Roentgen examination revealed collapse of the ninth thoracic and first lumbar vertebrae. This was interpreted as a possible result of lipoid infiltration of the bones. Toward the end the patient developed azotemia and hypertension. He died approximately three years after the first admission.

At autopsy there was found a generalized amyloidosis involving the liver, spleen, stomach, pancreas, thyroid, suprarenals and kidneys. There was incipient renal contraction. In addition, there was a diffuse amyloid infiltration of the bone marrow of the vertebrae, ilia, femurs and ribs. Because of limited autopsy permission the other bones were not examined. No cause for the amyloidosis was found.

In the light of the autopsy, many of the unusual clinical features can now be interpreted. The hypercholesteremia, while unusually high in this instance, must be looked on as a consequence of the nephrosis resulting from amyloid infiltration of the kidneys. The hypoproteinemia and the reduction of the albumin globulin ratio can be interpreted on the same basis. The collapse of the ninth thoracic and first lumbar vertebrae

can be accounted for by the most unusual finding of diffuse amyloid infiltration of the bone marrow. While it was not possible to demonstrate the presence of double refractile bodies or fat in the lymph nodes removed at biopsy, the presence of foam cells together with the clinical features of nephrosis and hypercholesteremia warranted the diagnosis of lipoid histiocytosis.

The present case serves to demonstrate the difficulty in the diagnosis of idiopathic amyloidosis, particularly since this condition presents a variety of clinical syndromes in which the disturbance in lipoid metabolism may be prominent.

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STAPHYLOCOCCUS TOXOID IN THE TREATMENT OF PUSTULAR DERMATOSES

To the Editor:—The article by Kindel and Costello under this title in THE JOURNAL, April 21, is open to several criticisms.

The authors apparently set out to make a purely clinical assay of the efficacy of a particular commercial preparation of staphylococcus toxoid in the treatment of pustular dermatoses. Among a group of forty-two patients, including twenty-eight with acne vulgaris, eight with sycosis vulgaris and only six with furunculosis, a slight improvement was noted in eight, while thirty-four were unimproved or worse after several injections of staphylococcus toxoid.

The authors concluded that these were unsatisfactory results, and one does not cavil at their conclusion. But their further observation that "caution should be exercised in becoming overenthusiastic about the value of staphylococcus toxoid until further reports confirm or deny our observations" seems entirely superfluous and unwarranted. Admittedly, excessive enthusiasm of the type the authors probably had in mind exerts a baneful influence on the proper evaluation of any new biologic product. Since my paper in THE JOURNAL, April 1, 1933, on the treatment of localized staphylococcic infections with staphylococcus toxoid is the only report of favorable results to which Drs. Kindel and Costello directly refer, I beg leave to point out that a careful perusal of it will reveal no signs or symptoms of excessive enthusiasm on the part of its author. Moreover, it seems proper to state here that since the Connaught Laboratories began to manufacture staphylococcus toxoid for distribution to the medical profession in the Dominion of Canada, nearly twelve months ago, one has been far more concerned with endeavoring to dampen the excessive enthusiasm of certain clinicians who would use the product for almost any ailment than with challenging the skepticism of those who had not yet tested its efficacy in the treatment of localized staphylococcic infections.

But the results reported in my preliminary paper still stand; and such favorable results are not "denied" by any subsequent report of unfavorable results in which a different preparation is used. Though not "denying" the unfavorable results reported by Drs. Kindel and Costello with their toxoid, further experience of the use of the Connaught Laboratories' preparation of staphylococcus toxoid on a far greater number and variety of cases than were treated by these authors has indubitably confirmed my previous views as to its value in the treatment of localized staphylococcic infections. A paper summarizing my experience of the clinical use of this antigen for the past two years is in course of preparation.

To make my criticisms more particular, the following points may be mentioned: First, with regard to the patients selected for the investigation described in this paper, not less than twenty-eight of the forty-two had acne vulgaris, a complex disease whose failure to respond to injections of staphylococcus toxoid hardly constitutes a fair basis for disputing the efficacy of this product, when properly made, in the treatment of staphylococcic infections. Although in my hands remarkable degrees of improvement have often occurred from the use of toxoid in acne vulgaris when there has been bacteriologic evidence of superimposed infection with toxigenic staphylococci, there can be few dermatologists, and still fewer with a training in bacteriology who may have chanced to submit a comedone to anaerobic culture, who would maintain that the acne bacillus does not play a significant part in the etiology of this disease.

Second, with regard to the preparation of the toxoid, a single strain of staphylococcus was used in the manufacture of the original toxin, although there are many reasons for believing that several strains should be used and their toxins pooled. Again, the methods of preparation and assay of the toxin and its subsequent conversion into toxoid are of crucial importance. But such meager details as are given of their methods by these authors seem largely irrelevant, while no indication whatever is given of observations that may have been made regarding the antigenicity of the final product. Toxic filtrates were apparently assayed in terms of their necrotizing effect on the skin of rabbits, although the values so obtained are not given. But the three toxoids used in this study were accredited with "values of 200, 400 and 800 units per cubic centimeter respectively." Is it to be presumed from this statement that the toxoids retain a considerable degree of necrotizing effect on a rabbit's skin? If, as is more probable, the authors really meant that the original toxins showed strengths of 200, 400 and 800 rabbit dermonecrotic units per cubic centimeter before detoxication, one valid explanation of their failure to obtain favorable results at once presents itself. As was pointed out in my paper, the minimal dermonecrotic dose of toxins representative of those used in the preparation of the toxoids I used was 0.00014 cc. That is, the original toxins have often contained 70,000 rabbit dermonecrotic units per cubic centimeter. Furthermore, all my preparations of staphylococcus toxoid are carefully tested for antigenicity and innocuity, by assaying their power to provoke active antitoxic immunity in laboratory animals, before they are liberated for use in the treatment of human beings.

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University of Toronto.

BRONCHIAL ASTHMA IN PREGNANCY

To the Editor:—I read the paper entitled "Bronchial Asthma as a Complication of Pregnancy" by Dr. Bradford Green (THE JOURNAL, February, 3, p. 360) and also the communication in Correspondence (April 14, p. 1248) from Dr. R. H. Kampmeier, and would like to comment on Dr. Kampmeier's letter. His contention that allergic manifestations disappear during pregnancy, in contradiction to Dr. Green's experience that there is aggravation of asthma during pregnancy, is also borne out by my experience of an interesting case.

A woman, aged 28, had had severe attacks of bronchial asthma for the past eight years. During pregnancy she was free of all symptoms of asthma and this absence of symptoms continued till three weeks post partum. When she was 30, I delivered her of her eighth child. All lived. The pregnancies occurred about one year apart to relieve her of her asthma. All the customary skin testing and injections of antigens and vaccines failed to prevent her asthmatic attacks when not pregnant.

I agree with Dr. R. H. Kampmeier that a seasonal manifestation of allergy or bronchial asthma may be absent entirely if pregnancy includes the months of hay fever incidence. It must also be realized that though pregnancy, according to Dr. Green, aggravates bronchial asthma, there is also ample evidence to prove that pregnancy relieves asthma and prevents attacks in some cases.

SAMUEL W. VERNICK, M.D., New York.

THE MEDICAL PROFESSION AND PRISONS

To the Editor:—There are 251 federal and state prisons in the United States, as well as 3,096 city and county prisons and jails. All the former institutions have one or more medical officers, and these institutions admitted last year more than 120,000 prisoners. Prisoners in all cases were committed to serve over a year, so that it is evident that there is a definite health problem in our prisons.

Of the 251 federal and state prisons there are at least 119 that have very inadequate medical service and show a gross neglect of the physical and mental care of their wards. These 119 institutions take care of about 30,000 individuals each year and turn them back into the population without consideration as to the individual's health. They pay no attention to the hazard to public health that these 30,000 individuals obviously create. Many of the other institutions are extremely lax in the medical care of their prisoners, and it is an unfortunate situation that in less than a dozen state prisons is adequate medical and surgical care being given to the inmates. Fortunately, the federal prisons are supplied full time physicians from the U. S. Public Health Service.

The widespread recognition which medicine has come to gain as an agency of social hygiene and social amelioration carries with it new opportunities and new responsibilities for the medical profession. It renders imperative the physician's emancipation from the individualistic tradition of aloofness which has gained control of the profession with the passing of the family doctor and of the innate personal relationships that could not survive under modern conditions of specialization. Unfortunately, our prisons have enlisted to their service medical men who in many cases are castoffs of the profession—physicians who are failures and, consequently, obtainable at a beggar's fee. The administrators have been too prone to make the statement that even these derelicts of medicine are too good for the "gutter rats" confined to their cells. Seldom, if ever, does a warden or superintendent of a prison call on his institutional physician for professional care.

A detailed study of more than 2,000 prisoners in a large institution showed that only about 33 per cent of the prisoners were really normal individuals intellectually and emotionally; 24 per cent were definitely feebleminded, and 7.5 per cent were mentally so unbalanced as to be diagnosed psychotic or potentially psychotic; 8.2 per cent of the inmates suffered from poor eyesight, and 1 per cent more had some definite eye infection; 1.9 per cent had obstruction in the nose, while 0.9 per cent had ear trouble. At least 6 per cent suffered from correctable defects, such as hernia and flatfoot. Slightly over 5 per cent showed definite indications of tuberculosis, and at least 0.2 per cent had active signs of tuberculosis; 12.5 per cent had active gonorrhea and 8.5 per cent syphilis in some form, while 50 per cent had poor teeth, 2.5 per cent heart trouble, and at least 5.5 per cent had tonsils or adenoids that needed to be removed. At least 3 per cent were undernourished when they came into the institution, and a majority suffered from disorders of the digestive system.

It is a tragic commentary on the American system that our prisons are filled with poor people, those who in a majority of cases cannot afford to employ legal aid and who also probably did not employ medical aid previous to their commitment. Most prisoners come from wholly inadequate homes, and society seems to hold to the belief that the home can do no wrong and that antisocial behavior is the individual's responsibility. However, there is no doubt that, once the prisoner has been deprived of his legal rights as a citizen and become a ward of the state, it is the state's responsibility to furnish that individual the highest type of medical and surgical care. And certainly since far the majority of these prisoners will again be released into the community, they should be given the necessary treatment while under confinement to refit them into society as normal individuals, if possible, without handicaps.

The medical profession should take an interest in this matter and lend its support to raising the standard of the profession in these important institutions. Much can be done by the profession to remedy this situation. If the standard of medical care in our prisons could be raised to the standard it should be, undoubtedly it would act as a prevention of crime. If the prisoners were released better than when they were committed, there would not be the resentment against society for depriving them of their liberty. But it is extremely unfortunate that, in most cases, prisoners today stand a chance of release from prison in a more deplorable state than when they were committed to incarceration.

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Director, Classification Clinic, Elmira Reformatory; Secretary, Medical Section, American Prison Association.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

BARBERS' ITCH

To the Editor:—What would you suggest for barbers' itch? Please do not publish my name.

M.D., Oklahoma.

ANSWER.—Barbers' itch is a popular name for any infectious disease of the skin of the bearded region. Impetigo contagiosa, including sycosis vulgaris, the form named after Bockhardt, caused by bacteria, the tineal form of sycosis, and the rare disease called lupoid sycosis are most properly designated barbers' itch; but syphilis, lupus vulgaris, lupus erythematosus, actinomycosis or blastomycosis, occurring in the bearded area, might be so named by the public. Only the former group will be considered in this discussion.

Impetigo contagiosa is characterized by initial vesicles arising from apparently normal skin, the vesicles quickly becoming pustular and bursting, leaving an erosion, which is soon covered by a thin crust, typically covering the whole erosion so that it seems stuck on with edges slightly upturned. Not seldom the pustule does not burst but the contents are absorbed and the roof sinks down and becomes part of the crust. When the crust falls, a red macule is left, which slowly fades to the normal skin color. There is no scar. In the meantime other lesions have appeared wherever the infection has been carried by the fingers or other means, often by the razor or shaving brush, in the bearded region. Sometimes circinate figures are formed by peripheral extension of the bulla with central healing. In other cases the bullae may become quite large.

Bockhardt's impetigo is a very superficial folliculitis, the lesions small. It is more often confined to the bearded region than the common form of impetigo, which tends to involve other parts of the face, scalp, hands and other parts of the body.

Both forms of impetigo are superficial processes, usually yielding readily to simple antiseptics, as ointments of ammoniated mecury in a strength of from 2 to 10 per cent. In stubborn cases, painting the erosion with a solution of silver nitrate, from 2 to 5 per cent, may hasten cure, the ointment being used on the skin between. In those sensitive to the mercurial, gentian violet, in 5 per cent aqueous solution, may be painted on once a day. The secret of success in treatment is to watch for new lesions to treat them promptly, and to warn the patient of the danger of spreading the infection by means of the fingers, towels or razor. Shaving should be omitted during the course of disease, the beard being clipped instead. All cleansing operation should be first carried out on the noninfected part of the face, the infected part treated last, and the hands, towels and scissors carefully cleansed afterward.

Sycosis vulgaris, infection of the hair follicles by pus organisms, is often confused with Bockhardt's impetigo; but sycosis is much deeper, causes swelling of the skin and loosening of the hairs, and does not heal on simple treatment, though it may clear up temporarily. Any part of the beard may be involved, but the upper lip is a favorite site, infected by nasal

discharges. Frequently this is the only part infected at first. The characteristic lesion is the follicular pustule on a base of swollen, reddened skin. From day to day the infection varies in severity, at times almost clearing up, leaving only a few papules to mark the site, then suddenly becoming severe again.

In contrast, tineal sycosis is more apt to involve the neck below the angle of the jaw and seldom is seen on the upper lip only, though a few such cases are on record. Instead of the ill defined patches of erythema studded by pustules, ringworm sycosis usually forms sharply defined patches, round, oval or polycyclic, sometimes becoming circinate by central clearing, but more often forming patches composed of granulomatous tumors from which pus oozes in many places, corresponding to the kerion Celsi seen in the scalps of children with ringworm infection. These violently inflamed patches are due to infection with large spored ringworm, often Tricophyton gypseum, to which the skin reacts vigorously and establishes a considerable immunity, killing a large part of the organisms. For diagnostic purposes the hairs from the edge of the patch should be examined, for those in the center frequently do not show organisms. Because of the violent reaction, these cases yield to treatment more readily than bacterial sycosis. Discovery of the organisms about the root of the hair after soaking the specimen in 10 per cent potassium hydroxide for from a few hours to three days is usually possible. The tumor-like character of the infected areas and the unilateral or at least asymmetrical distribution are important differences from the bacterial form of sycosis. Ringworm of the beard is comparatively rare.

Lupoid sycosis is a rare disease in which large circinate lesions, sometimes occupying the whole cheek, are seen. The center is formed in part at least by atrophic or deep scars, the active border only a few millimeters in width, formed of papules, vesicles and pustules. It is highly resistant to treatment.

Treatment is much the same for all forms of sycosis. Wet dressing of solution of aluminum acetate, 1 part to 15 parts of water, or saturated solution of boric acid or surgical solution of chlorinated soda are indicated for the pustular conditions, these being alternated with ointments of ammoniated mercury, sulphur or resorcinol for the bacterial disease, salicylic and benzoic acid for the tineal infection. Tincture or iodine is one of the most useful applications but it should be weakened to 50 per cent strength with alcohol for most cases and should not be alternated with mercurials for fear of producing dermatitis venenata. In some cases this may be done intentionally on a small area, the violent inflammation aiding in recovery.

Shaving must be prohibited, the beard being clipped instead. All infected hairs must be epilated each day. In some cases such treatment, if kept up for several months after apparent cure, may be successful. Too often, however, the condition recurs as soon as the treatment stops.

Mild treatment with x-rays in divided dosage, one-fourth erythema dose once a week, may clear up sycosis vulgaris. With it only the milder forms of antiseptic treatment should be used, as 5 per cent ointment of ammoniated mercury, alternating with cool wet dressings of solution of aluminum acetate. If twelve weeks of such treatment fails to cure, more vigorous measures must be taken, complete epilation of the affected parts. This may be accomplished by radium or x-rays. Thallium acetate, even in half dose, as suggested by some, is too dangerous to be given to adults. In cases in which x-rays in divided dose are given, a month or more without treatment should be insisted on before attempting epilation. The patient must understand that there is some danger of later atrophy of the skin, and his signature to a release may be of value.

Two methods are recommended by G. C. Andrews (Diseases of the Skin, Philadelphia, W. B. Saunders Company, 1930, p. 516), the divided dose method, one-fourth erythema dose through 3 mm. of aluminum every third day for four doses, then a fifth irradiation of the same strength a week after the fourth. The massive dose, seven-eighths erythema dose in one application, through 3 mm. of aluminum may be preferred. The hair comes out in about three weeks. Remaining hairs must be epilated mechanically and then the use of antiseptics begun, for the epilation is only preparation for the real treatment intended to protect the new hairs from becoming infected.

Tincture of iodine, at first diluted to half strength, later in full strength, may be applied daily until the skin becomes dry with a tendency to fissure. Then an ointment is used, Whitfield ointment, 2 per cent salicylic acid and 4 per cent benzoic acid in ointment of rose water, for the tineal sycosis; or sulphur and resorcinol, of each 3 per cent, in the same base for the bacterial form of the disease. Some such application must be kept up until the new hair is well grown. If small focal recurrences show themselves, mechanical epilation and stronger antiseptics must be used. Treatment should be kept up for at least a month after all signs of the disease have disappeared. Then the patient should report regularly for several months for inspection.

No possible means of increasing the good health and resistance of the patient should be neglected. A generous, well chosen diet, containing plenty of vitamins, regular exercise outdoors, sunlight or ultraviolet radiation, regular hours of sleep and an effort to get rid of any focal infection other than that in the beard are essential. Even the most thorough and painstaking treatment often fails to cure these cases.

EFEMIST (HART) AND EFEDRON (HART)

To the Editor:—Are there any therapeutic advantages of Efemist and Efedron (Hart) over similar nonproprietary preparations? Recent circulars of the Hart Drug Corporation of Miami, Fla., claim verification "editorially," in recent issues of THE JOURNAL, of this attitude.

M.D., Palo Alto, California.

ANSWER.—In Queries and Minor Notes in THE JOURNAL, Feb. 8, 1930, page 430, the formula for Efedron was stated as:

Ephedrine hydrochloride	Gr. 1
Chlorbutanol	Gr. 2¼
Sodium chloride	Gr. 2¼
Menthol	Gr. 3
Phenol	Gr. 2
Oil of cinnamon	Gr. 0.08
Jelly base	q. s. ad drachms 5

It was stated at that time that, although liberal samples were being distributed among the profession, nevertheless the carton was, seemingly, addressed to the public as well.

Efemist, according to the advertising of the manufacturer, contains 1 per cent ephedrine hydrochloride and ¼ per cent chlorbutanol, in addition to undeclared amounts of menthol, eucalyptol, phenol and sodium chloride in a "special water and tissue fluid soluble base."

Of course, neither Efedron or Efemist has been accepted by the Council on Pharmacy and Chemistry, nor has the manufacturer requested Council consideration of the products.

Under date of March 2, 1934, a circular letter to the profession from the Hart Drug Corporation stated as follows:

"Would you knowingly care to prescribe any preparation that was injurious to the physiological function of the tissues to which it is to be applied? Undoubtedly not! Yet, in the selection of preparations intended for localized nasal mucous-membrane application it is amazing how frequently certain fundamentals in this respect are being overlooked.

"For a number of years we have been consistently endeavoring to point out to physicians why *water-soluble preparations are far superior to oily preparations in this form of therapy. In this connection it may be interesting to note that editorially 'THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,' Vol. 101, No. 19, directs attention to the fact that an oily base in ephedrine-containing preparations is deleterious to the cilia of the nasal mucosa.*

"Also, in Vol. 102, No. 1, of the same publication, while the harmlessness of the long continued use of ephedrine nose drops is shown, *attention to the dangers of oil-containing solutions are pointed out.*

"EFEMIST (Hart) *contains not a single drop of oil to interfere with ciliary activity.* Indeed, in this preparation the vehicle holding the active ingredients is both water and tissue-fluid soluble, thus making ephedrine available to the tissues rapidly and in maximal quantities.

"Therapeutic success largely depends upon the details of therapeutic fine points; and while there exist many ephedrine-containing solutions at your disposal, we believe that NONE have been evolved which take into consideration as many points of therapeutic nicety as EFEMIST."

The reference to THE JOURNAL (italics ours) represents either misunderstanding or deliberate misinterpretation. The sources referred to appear among Queries and Minor Notes; they were not editorials. In the first note (THE JOURNAL, Nov. 4, 1933, p. 1503) is was stated:

It has been stated by some research workers that the oil has a deleterious effect on the cilia; but bad results have not been observed from the use of liquid petrolatum to which a small amount of ephedrine has been added.

In the second reference (THE JOURNAL, Jan. 6, 1934, p. 67) it is reported, in part, that

One must guard against the use of too much ephedrine at a time with a resultant swallowing of the drug, with its constitutional reactions. In very young children, nose drops of oily character have been known to enter the lung, producing undesirable reactions.

One fact is obvious, that oily solutions of ephedrine when used properly are not injurious to the nasal mucous membrane. That is the fact which it was the intention of each article to point out. No comparison was made of watery with oily solutions and it was certainly furthest from all intent in either Query and Minor Note even to suggest that the unacceptable proprietary mixtures, Efedron and Efemist, are to be commended or that they are superior to oily solutions of ephedrine.

STENCIL INK POISONING

To the Editor:—I have a patient who is suffering with a peculiar edematous condition. He is inclined to think that his illness is due to a chronic poisoning with stencil ink. Could this be possible? If so, where could I find literature on stencil ink poisoning?

EDWARD TRIPPEL, M.D., O'Fallon, Ill.

ANSWER.—From the description it is difficult to tell whether a dermatitis is present or some other type of generalized edema. The majority of poisonings described as due to ink have been forms of dermatitis or eczema. Several types of materials may be responsible for the inflammation. The ordinary inks may cause irritation either because of their irritating nature or because of the dryness of particular skins. There have been reported also instances of rotogravure ink dermatitis. In other instances it has been found that the cleaning materials used to remove ink stains have been the causative agents for the dermatitis. A fairly thorough search of the literature does not disclose a separation of stencil ink dermatitis from other forms of irritation due to ink. The following references may be found useful:

White, R. P.: The Dermatergoses or Occupational Affections of the Skin, New York, Paul B. Hoeber, 1929.
McConnell: *Pub. Health Rep.* **36**:979 (May 6) 1921.
Abelsohn, H.: Eczema of Printers and Their Graphic Assistants, *Med. Welt* **5**:407 (March 21) 1931.
Oliver, E. A.: Rotogravure Ink Dermatitis, THE JOURNAL, Sept. 23, 1928, p. 870.
Seitz, A.: Printer's Eczema from Washing Fluids, Zentralbl. f. Gewerbehyg. **4**:433 (Dec.) 1927.

POLYCYSTIC KIDNEYS—KETOGENIC DIET IN UROLOGY

To the Editor:—1. Please give the latest accepted theory on the causation of polycystic kidneys, and the percentage of occurrence, with prognosis and treatment. I would appreciate an elaboration in detail on treatment. It has been my opinion that once these cases were diagnosed the patient should be treated by an internist rather than by a urologist. Am I right or wrong? 2. Would you mention the value of the ketogenic diet as applied to urology? Please omit name.

M.D., District of Columbia.

ANSWER.—1. Polycystic kidneys are recognized clinically in an incidence of only about 1 in 3,500 patients but are found at postmortem examination in about 1 in 1,000 persons. The cystic condition of the kidneys may be associated with cystic disease of the liver, but the cysts of the liver are usually confined to limited portions and seldom produce symptoms of hepatic disease. Polycystic kidneys are always bilateral, although, for a time at least, one kidney may be much smaller than the other and its condition may escape recognition or palpation. The condition must be distinguished pathologically from solitary cyst of the kidney, in which, although the cysts occasionally are multiple, they seldom are so numerous or of such a character that the condition of solitary cyst can be confused with that of polycystic kidney.

The cause of polycystic kidneys is not known, but they are believed to be due to a developmental defect and to be related to inadequate fusion of constituent parts of the renal units. A tendency for the condition to be hereditary has been noted by many observers and constitutes one of the chief proofs of its congenital nature. It has been suggested that it would be logical to consider limitation of progeny by the afflicted, in view of the pronounced hereditary tendency; but as patients are generally beyond the usual child-bearing age when the diagnosis is made, the suggestion seems more academic then practical.

The symptoms of the condition are usually not noted until the patient is between 40 and 50 years of age. A dull pain over either kidney may be the only early symptom. Frequency and dysuria may be noted. In about a third of cases, gross hematuria may occur at intervals. A sudden hemorrhage into a large cyst or a ureteral obstruction due to blood clots may produce acute renal pain simulating colic. Symptoms and signs of renal insufficiency eventually ensue, and these include hypertension in the majority of cases, contrary to the opinion of some. Death may result from uremia or vascular accidents.

In polycystic renal disease when hematuria and an abdominal tumor, mistakenly considered to be unilateral, are noted, an erroneous diagnosis of renal neoplasm may be made and operation performed, leading to serious consequences. Intravenous urography may be necessary to complete the diagnosis of polycystic kidneys, for urographic signs are generally characteristic. Bilateral simultaneous pyelography in this condition may be dangerous.

The prognosis depends largely on the degree of renal insufficiency resulting from the varying rates of formation of cysts and consequent excretory embarrassment. The prognosis is good as long as renal function remains normal or nearly so. Even with moderate renal insufficiency, patients may live comfortably for ten or fifteen years, and concentrations of urea of more than 100 mg. per hundred cubic centimeters of blood may be remarkably well borne for several years. In fact, expectancy of life in this condition averages about fifty years and patients occasionally have lived to be more than 60 years of age if they have exerted reasonable care. Data on 193 cases have been recently reported by Braasch and Schacht (*Surg., Gynec. & Obst.* **57**:467 [Oct.] 1933). Of forty-two patients known to be alive, twenty-five were living at least ten years and nine more than twenty years after the onset of symptoms. One patient lived twenty-three years; another, thirty-six years after the first symptoms. Of seventy-four patients reported dead, twenty-two died within two years and eleven within four years of the first symptoms.

Medical treatment alone is generally indicated, although surgical treatment may be required when severe secondary infection involves one kidney, or when very large cysts cause considerable discomfort, producing in some cases mechanical obstruction to excretion of urine. Surgical evacuation and destruction of large or hemorrhagic cysts may then give relief. It must always be remembered that the condition is bilateral. Medical care is concerned with the usual measures for chronic renal insufficiency and is directed toward restrictions in diet and in exercise, supervision of hours of rest, and prevention of intercurrent infections. All strenuous exercises and labor should be avoided, but less vigorous types of physical recreation, such as short walks, are permissible. The patient should have ten hours' rest in bed at night and if at all possible a rest at noon of one hour. If renal function is still normal, rigid dietary restrictions are probably not indicated. Such measures are saved for future requirements. If the value for urea is more than 40 mg. per hundred cubic centimeters of blood, the daily diet should contain only about 40 to 60 gm. of protein. Carbohydrates may be taken as they are necessary for adequate caloric intake. Restrictions in intake of salt are necessary if edema impends; otherwise just enough salt to season food palatably should be allowed. A daily intake of fluid of about 2,000 cc. should be insured unless significant edema appears, when moderate restriction of fluid may be necessary; edema, however, rarely occurs. A daily warm bath, mild laxatives or warm enemas may increase adventitious elimination of metabolites. Ample clothing, prevention of undue exposure to cold, and, when possible, a sojourn in a warm, dry climate are desirable. If the patient is in middle age and little or no renal insufficiency is present, any chronic source of infection should be removed; but the time for its removal must be carefully chosen.

2. The use of the ketogenic diet in the treatment of bacilluria, if there are no anomalies of the urinary tract, is steadily gaining favor. Even when anomalies are present, Helmholz has noted successful results; but Rennie's results (*Arch. Dis. Childhood* **8**:47 [Feb.] 1933) in four cases of pyuria associated with abnormalities of the urinary tract were disappointing. In uncomplicated cases, Rennie reported satisfactory sterilization of the urinary tract. The rational method of treatment and results of this diet have recently been briefly reviewed in Queries and Minor Notes (THE JOURNAL, Oct. 28, 1933, p. 1413).

It must be stated that the ketogenic dietary treatment of bacilluria of the escherichia type thus far has been more successful than that of the aerogenes type of infection. Successful treatment in any case requires hospitalization under the care of a dietitian and with the cooperation of a laboratory expert, as Wilson (*Post.-Grad. M. J.* **9**:96 [March] 1933) has emphasized. The correspondent also could well refer to Crance (*Urol. & Cutan. Rev.* **37**:528 [Aug.] 1933).

DERMATITIS FROM CRUDE OIL

To the Editor:—I would like information concerning dermatitis (industrial) from contact with crude oil or crude petroleum.

JOSEPH M. ADAMS, M.D., New Orleans.

ANSWER.—Crude mineral oil, like other oils, causes an acne-like eruption on the skin coming into constant contact with it. The bare forearms and the covered parts in contact with oil-soaked clothing are most often affected. First are seen comedones, plugs of thick oil or paraffin, which fill the follicle mouths and collect dirt. They cause an inflammation about the follicle, with pus formation in nature's effort to get rid of them. A deep pustule results, which often heals with a scar. Except for the distribution, which affects the parts exposed to oil instead of the face, neck, upper part of the chest and upper part of the back, and for the accompanying hyperkeratosis, this eruption is like that of acne vulgaris. Later the skin becomes thickened and pigmented, the keratotic papules persist, and a certain proportion of them become epitheliomas.

Of English workmen of long service in work that exposes them to constant contact with oil and who are over 40 years of age, 0.1 per cent develop epithelioma each year. Fifty per cent of them have some skin trouble. Even though they quit the oily job, they may develop epithelioma years afterward. Mule spinners—men whose work consists of reaching over a spinning machine while it is in motion, in order to mend broken threads, with consequent drenching of their clothes with the lubricating oil—are frequent sufferers from epithelioma of the scrotum. Sequeira reports the occurrence of epithelioma in thirteen such workers from one to fourteen years after quitting the job (Cancer and Other Diseases of the Skin Caused by Mineral Oils, *Kenya & East African M. J.* 6:18 [April] 1929).

Oils from Borneo, Assam, Egypt, Burma and Badapur are most irritating and most likely to cause dermatitis and epithelioma. Those from Galicia, Russia, California and Persia are less irritating. Shale oil is also classed among the irritating oils. Purification with sulphuric acid renders the oil harmless, as does oxidation or reduction. Oil tumors are reportable in Great Britain. During 1926 there were 187 such cases reported, of which 47 were fatal. French law allows compensation for such injuries.

Twort and Fulton found that most American oils are only slightly carcinogenic (Experiments on the Nature of the Carcinogenic Agents in Mineral Oils, *J. Path. & Bact.* 32:149, 1929). The active carcinogenic agent is concentrated in extracts made with methyl sulphite or methyl sulphate and trinitrophenol and this process is useful in testing oils intended for industrial use.

Because of the fear that medicinal mineral oils might also be harmful, F. C. Wood (The Noncarcinogenic Nature of Purified Mineral Oils, THE JOURNAL, May 24, 1930, p. 1641) tried them out on the skin of albino mice, known to be particularly susceptible. Mineral oil for therapeutic use was found harmless, whether painted on the skin or administered internally. Heavy lubricating oil, painted on the skin three times a week for one year, caused a few "warts" (keratotic papules), while painting the skin in the same way for the same length of time with tar caused many keratoses and "a considerable percentage of epitheliomas.

Treatment of the dermatitis and prevention of the epitheliomas are both accomplished by cleanliness, thorough scrubbing of the skin with soap and hot water each day after quitting work, and protection from oil-soaked clothing. An oil-proof outer garment should be provided and the workmen inspected carefully, with particular attention to the groins and scrotum, every month or so. The tumors when present must be widely excised or thoroughly treated with x-rays or radium, for they are squamous cell epitheliomas, more malignant than the usual basal cell type.

POLYCYTHEMIA

To the Editor:—A woman, aged 64, the mother of six children, until the last three or four years strong and industrious, now has lack of strength and wearies easily. I sent her to a hospital recently and the red blood cells are reported as numbering 8,000,000, together with a slight trace of albumin and indican. The lungs are clear. There is slight cardiac enlargement. The complaints are weakness and anorexia. Is not phenylhydrazine hydrochloride recommended in cases of this nature? Where can it be obtained and what is the dosage? I have her on a fruit juice diet largely. She has always been temperate, except perhaps as to work and eating. She weighs 140 pounds (63.5 Kg.) What is supposed to be the etiology of polycythemia? Please omit name.

M.D., Texas.

ANSWER.—Before any therapeutic measures are employed, it should be determined that polycythemia rubra vera is the condition responsible for the patient's complaints. This may be accomplished by careful confirmatory blood studies, the presence of an enlarged spleen, a peculiar red cyanosis, a definite although slight elevation in the basal metabolic rate, and the absence of any other condition that might give rise to a secondary polycythemia (especially chronic cardiac and pulmonary disease). If polycythemia vera is present, at least two conservative forms of treatment may be given a trial: repeated venesection and irradiation of the long bones. It is generally agreed, however, that the results following the use of phenylhydrazine are more satisfactory than with the two previously mentioned forms of treatment, despite the fact that the drug may cause undesirable toxic effects.

Phenylhydrazine hydrochloride should be given in capsules by mouth in doses of from 0.1 Gm. (1½ grains) to 0.2 Gm. (3 grains). A patient receiving such treatment should be under close observation and the result of the therapy gaged by frequent blood examinations. If there is a fall in the red blood cell count and hemoglobin to approximately normal after from 1 Gm. (15 grains) to 3 Gm. (45 grains) has been taken, the therapy should be discontinued to observe whether a cumulative effect occurs. An increasing number of immature red blood cells or an increase in the number of white blood cells is an indication to discontinue the treatment temporarily. If there is no cumulative effect, and the red blood cell count remains significantly elevated, another gram (15 grains) of the drug may be given in daily doses of from 0.1 to 0.2 Gm. After the blood has reached normal limits, smaller doses should be given to maintain it at this level. The dosage required varies with each individual patient but usually averages between 0.06 Gm. (1 grain) and 0.3 Gm. (5 grains) weekly. As this drug is a protoplasmic poison, it should be given only to patients who can be observed at frequent intervals and to those in whom the therapy can be guided by frequent and careful blood studies. More recently Stone, Harris and Bodansky (The Treatment of Polycythemia Vera, THE JOURNAL, Aug. 12, 1933, p. 495) have advocated the use of acetylphenylhydrazine, as they consider that it is therapeutically effective and is less toxic than phenylhydrazine hydrochloride. It is impossible to appraise its value definitely until a larger group of patients has been treated, although it appears to have considerable promise.

The etiology of polycythemia is unknown but the disease is considered by some to be due to a neoplastic change in the bone marrow which in some respects resembles leukemia. Others consider that it may be due to some disturbance of hormone control of bone marrow activity.

Phenylhydrazine preparations may be obtained through one's druggist from any large manufacturing firm.

INHALATION OF WATERMELON SEED

To the Editor:—In August 1933 I was called to see a year old child with a watermelon seed in its lung. The seed had been inhaled a few minutes previous to my call and the child was exhibiting a noisy and difficult respiration and a brassy cough. Cyanosis was not present. The child was hospitalized and roentgenograms were taken of the chest, but these failed to show the location of the seed or evidence of air trapping. Because the foreign body could not be located, bronchoscopy seemed contraindicated, and I waited in the hope that the seed might be coughed up. This happened three weeks later, and a swollen, somewhat eroded, seed was coughed up. During its stay in the hospital the baby had a low grade temperature and continued to cough and wheeze. After the seed was coughed up the temperature returned to normal but the coughing and wheezing continued and is still present. The wheezing seems to originate in the larynx or upper part of the trachea, and with the exception of the transmitted wheezing sounds the lungs seem clear. The baby has no fever at present and, with the exception of the labored breathing, seems to be in good health. I wish you would outline any further treatment you feel might help the cough and wheezing to disappear and the child's breathing return to normal. Please omit name.

M.D., Wisconsin.

ANSWER.—The history is quite the usual one for cases of inspirated watermelon seed. The wheezing with absence of roentgenographic signs of emphysema or atelectasis is diagnostic of foreign body in the trachea. In this position, one lung is not affected any more than the other; consequently there is no difference of aeration as between the two lungs by either physical or roentgen signs. The persistence of the wheeze after the spontaneous expulsion of the foreign body indicates some narrowing of the airway by another foreign body (exogenous or endogenous) or pathologic condition. Only a diagnostic bronchoscopy would determine which of these possibilities is present. Treatment would depend on conditions found at bronchoscopy.

SENSITIVITY TO MERCURY

To the Editor:—A man, aged 37, when first seen, was suffering from an acute nonpurulent conjunctivitis. Topical applications of 2 per cent zinc sulphate were made to the lids, they were washed with physiologic solution of sodium chloride, and an ointment containing the following formula was given to instil between the eyelids at night: yellow mercuric oxide, 10 parts; solution of epinephrine hydrochloride, 40 pts.; zinc sulphate, 1 part; boric acid solution, 150 parts; wool fat, 190 parts; petrolatum, 609 parts. When seen three days later, the eyelids were markedly swollen and red and the patient complained of the severe itching. This subsided within three days, when he no longer used the ointment. He tells me that he lost a finger some years back and his hand was soaked in a blue solution (mercuric chloride solution, I thought). His hand swelled up to twice its normal size. Is it logical to assume that this man reacted to the mercury in the ointment? He has a 4+ Wassermann and 3+ Kahn test. Will antisyphilitic treatment without mercury be adequate? I have never seen such a reaction in the eyes or recall reading about it. Is it rare? Please omit name.

M.D., Ohio.

ANSWER.—It is possible that the patient developed a sensitivity to mercury (almost an allergic phenomenon). Antisyphilitic treatment without mercury a bismuth compound being substituted, would be adequate. Such reactions are uncommon.

CAVITIES IN DECIDUOUS TEETH

To the Editor:—What is the consensus among the best dentists about filling cavities in deciduous teeth? If this is not the accepted procedure, what is? Please omit name and address. M.D., North Carolina.

ANSWER.—The constantly increasing demand for education on the part both of the public and of the dental profession has brought the problem of prevention of decay and all the ills that follow in its wake to a point at which the leaders in education agree that the whole solution centers on its early prevention.

Evidence is at hand that school children develop more rapidly both mentally and physically if their mouths and teeth are regularly under the care of the dentist.

The deciduous teeth should be retained until the permanent ones are ready to erupt, their roots being absorbed to accommodate them. If the deciduous teeth are taken out or are lost by decay before the permanent ones are ready to take their places, the arch becomes too narrow and irregularity follows. This can be corrected only by the orthodontist. The deciduous teeth should be filled as soon as decay appears. They should be kept clean by the systematic use of the toothbrush. If cavities in deciduous teeth are not filled, the child loses the use of the teeth, their pulps die, and abscess and destruction of the jaw bone follow. Adenitis results; even tuberculous germs may enter glands through cavities in the teeth. Digestion is impaired, the child suffers pain, and impairment of the health and of development follows. There is no sane argument for allowing deciduous teeth to decay. Cavities should be filled as soon as they occur. Children should visit their dentist at least every six months and oftener if necessary.

The consensus among the best dentists is that all deciduous teeth, when carious, should be filled and retained until the permanent ones are ready to take their places.

SODIUM MORRHUATE IN INJECTION TREATMENT OF HEMORRHOIDS

To the Editor:—Kindly advise whether sodium morrhuate is commonly used in the injection treatment of hemorrhoids and what advantages, if any, it has over quinine and urea hydrochloride. Please omit name. M.D., New York.

ANSWER.—Sodium morrhuate may be used in the injection treatment of hemorrhoids but is not considered as efficient as quinine and urea hydrochloride or the phenol and oil solution.

SIMULTANEOUS IMMUNIZATIONS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, April 14, page 1251, was an inquiry as to simultaneous immunizations. In the answer the statement is made that "it is not known, for instance, whether successful vaccination against smallpox would interfere in any way with the immune reactions against scarlet fever toxin, diphtheria toxoid or pertussis vaccine." In the State Public School at Owatonna, Minn., where children from a few days old to the age of 16 are received from all parts of the state, cared for and later placed in homes if possible, it is our routine to vaccinate against smallpox and give toxoid or other vaccines the same day. In the last ten years we have followed this method in more than 2,000 children with no complications and have the usual number of successful vaccinations and the usual number of negative Schick or other tests when given at the proper time following.

A. B. STEWART, M.D., Owatonna, Minn.

To the Editor:—A query from Dr. Stern of Chicago in Queries and Minor Notes (THE JOURNAL, April 14, p. 1251) relative to simultaneous immunizations prompts me to report my experience:

In 1932, 350 school children were given simultaneous immunizing injections of diphtheria toxoid and typhoid vaccines, each child receiving two doses of diphtheria toxoid and being given a dose of typhoid vaccine with the toxoids.

I made Schick tests on these children in March 1934 and found exactly five Schick positive children in the entire group. The same thing occurred in Miami, Ariz., where 180 children were given simultaneous immunizations against typhoid and diphtheria also in 1932. In this group there were three Schick positive children in February 1934.

Children in both groups gave histories of considerable reaction during the immunizing period, and while I would not suggest the undertaking of simultaneous inoculations owing to such reactions occurring in these groups, yet I quote the low percentage of Schick positive children resulting when concurrent immunizations were given.

ANSON B. INGELS, M.D., Globe, Ariz.
Director, Gila County Health Unit.

EDEMA OF THE EYELIDS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, April 14, page 1249, M.D., Massachusetts, inquires about edema of the eyelids. Your reply is complete, with the exception of one condition not mentioned, though it is the cause of most puffy but nonedematous eyelids. This condition is an accumulation of fat in the loose periorbital tissue. Resection of an ellipse of skin will eliminate redundance but will not correct puffiness; this can be accomplished only by resection of infiltrated fat.

H. O. BAMES, M.D., Los Angeles.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* Cleveland, June 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 17 and Butte, Mont., July 16. *Application must be filed at least 60 days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARIZONA: *Basic Science.* Tucson, June 19. Sec., Board of Basic Examiners, Dr. Robert L. Nugent, University of Arizona, Tucson. *Medical.* Phoenix, July 3. Sec., Dr. J. H. Patterson, 320 Security Bldg., Phoenix.

COLORADO: Denver, July 3-6. Sec., Dr. Wm. Whitridge Williams, 422 State Office Bldg., Denver.

CONNECTICUT: Basic Science. New Haven, June 9. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Wilmington, June 12-14. Sec., Medical Council of Delaware, Dr. Harold L. Springer, 1013 Washington St., Wilmington.

DISTRICT OF COLUMBIA: *Basic Science.* Washington, June 25-26. Sec., Commission on Licensure, Dr. W. C. Fowler, 203 District Bldg., Washington.

FLORIDA: Jacksonville, June 11-12. Sec., Dr. William M. Rowlett, Box 786, Tampa.

ILLINOIS: Chicago, June 26-29. Supt. of Regis., Dept. of Regis. and Edu., Mr. Eugene R. Schwartz, Springfield.

INDIANA: Indianapolis, June 19-21. Sec., Board of Medical Registration and Examination, Dr. William R. Davidson, Room 5, State House Annex, Indianapolis.

IOWA: Iowa City, June 5-7. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

KANSAS: Topeka, June 19-20. Sec., Board of Medical Registration and Examination, Dr. C. H. Ewing, Larned.

KENTUCKY: Louisville, June 6-8. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

MAINE: Augusta, July 5-6. Sec., Board of Regis. of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MARYLAND: *Homeopathic.* Baltimore, June 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore. *Regular.* Baltimore, June 19-22. Sec., Dr. Henry M. Fitzhugh, 1211 Cathedral St., Baltimore.

MICHIGAN: Ann Arbor, June 5-7 and Detroit, June 12-14. Sec., Board of Regis. in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, June 5-6. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, June 19-21. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MISSISSIPPI: Jackson, June 26-27. Sec., State Board of Health, Dr. Felix J. Underwood, Jackson.

MISSOURI: St. Louis, June 14-16. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, June 25-27 and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: Omaha, June 8-9. *Application must be filed at least fifteen days prior to date of examination.* Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW JERSEY: Trenton, June 19-20. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW YORK: Albany, Buffalo, New York and Syracuse, June 25-28. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Room 315 Education Bldg., Albany.

NORTH CAROLINA: Raleigh, June 18. Sec., Dr. B. J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, July 3-6. Sec., Dr. G. M. Williamson, 4½ S. 3d St., Grand Forks.

OHIO: Columbus, June 5-8. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 6-7. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

RHODE ISLAND: Providence, July 5-6. Dir., Public Health Commission, Dr. Lester A. Round, 319 State Office Bldg., Providence.

SOUTH CAROLINA: Columbia, June 26. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

TENNESSEE: Knoxville, Memphis, and Nashville, June 14-15. Sec., Dr. H. W. Qualls, 130 Madison Ave., Memphis.

TEXAS: Fort Worth, June 21-23. Sec., Dr. T. J. Crowe, 918-19-20 Mercantile Bank Bldg., Dallas.

UTAH: Salt Lake City, June 27-29. Dir., Department of Registration, Mr. S. W. Golding, 326 State Capitol Bldg., Salt Lake City.

VERMONT: Burlington, June 20-22. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, June 20-22. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WISCONSIN: Milwaukee, June 26-29. Sec., Dr. Robert E. Flynn, 401 Main St., LaCrosse.

WYOMING: Cheyenne, June 4. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Colorado January Report

Dr. William Whitridge Williams, secretary, Colorado State Board of Medical Examiners, reports the written examination held in Denver, Jan. 3-5, 1934. The examination covered 8 subjects and included 80 questions. An average of 75 per cent was required to pass. Four candidates were examined, all of whom passed. Three physicians were licensed by endorsement. The following schools were represented:

PASSED	Year Grad.	Per Cent
School		
University of Colorado School of Medicine	(1933)	88
Washington University School of Medicine	(1933)	85.1
McGill University Faculty of Medicine	(1933)	89.1
Osteopath*		79.3

LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
School		
Rush Medical College	(1930)	Illinois
University of Nebraska College of Medicine	(1931)	Nebraska
University of Oregon Medical School	(1932)	Oregon

* Licensed to practice medicine and surgery.

Hawaii January Examination

Dr. James A. Morgan, secretary, Board of Medical Examiners, reports the oral and written examination held in Honolulu, Jan. 8-11, 1934. The examination covered 10 subjects and included 55 questions. An average of 75 per cent was required to pass. Three candidates were examined, 2 of whom passed and 1 failed. Two physicians were licensed by endorsement. The following schools were represented:

PASSED	Year Grad.	Per Cent
School		
Loyola University School of Medicine	(1933)	81.7
St. Louis University School of Medicine	(1932)	80.2

FAILED	Year Grad.	Per Cent
School		
Chicago Medical School	(1920)	70.4

LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
School		
University of Colorado School of Medicine	(1932)	N. B. M. Ex.
State University of Iowa College of Medicine	(1932)	N. B. M. Ex.

Book Notices

Blindness and the Blind in the United States. By Harry Best. Cloth. Price, $6.50. Pp. 714. New York: The Macmillan Company, 1934.

The seven parts of this book deal, respectively, with blindness and possibilities for its prevention; general condition of the blind; provision for education of blind children; intellectual provision for the adult blind; material provision for the blind; organization, interested in the blind, and conclusions with respect to work for the blind. It is a comprehensive and painstaking compendium of information gathered from so many sources that it would seem scarcely possible that any have been overlooked. It is full of statistical studies made with admirable restraint in interpretation of figures. It is documented with exceptional completeness. Without shrinking from facts or in any way minimizing the problem, it presents an encouraging picture of possibilities for the alleviation of the condition of the blind in the United States. It emphasizes that the present movement in medical research and social investigation is one of prophylaxis. It emphasizes the preventable nature of such common causes of blindness as trachoma, ophthalmia neonatorum and accidental injuries. Except for hereditary blindness, which is characterized as a small part of the total problem, though sufficiently conspicuous and tragic in individual families, the outlook is favorable. The keynote of the investigation is to be found in these sentences in the introduction: "Concern in the blind that is based upon their actual position in society and the treatment which they have received from it, purely as a matter of scientific inquiry—though in no wise removed from a profound human love, and indeed wrapped about therewith—has been of secondary moment. In other words, an examination of the blind and of their estate from the point of view of the social economist—the presentation of something of what has come to be known as a 'social survey' respecting them—has as a comprehensive study been wanting. The object of the present work is to consider the blind, as respects the United States, with this latter conception in mind." The book is not one for reading in idle moments. It is a condensed work of reference which ought to be of interest to students, sociologists, legislators, educators and physicians.

Alcohol: Its Effects on Man. By Haven Emerson, M.D., Professor of Public Health Practice, Columbia University. Cloth. Price, $1. Pp. 114. New York & London: D. Appleton-Century Company, Inc., 1934.

This book is no doubt an outgrowth of a larger work edited by Dr. Emerson and published during the past year. The purpose of the little volume is to provide school teachers and students with the facts regarding the actions and effects of alcohol on man as they are now known to the medical sciences.

Dr. Emerson lists fifteen well established facts regarding alcohol in relation to illness with which no doubt the vast majority of physicians will agree:

1. Alcohol is a narcotic which, by depressing the higher centers, removes inhibitions.
2. Outside of the nervous system and the digestive tract, alcohol used as a beverage has little demonstrable effect.
3. It is a food, utilizable as a source of energy and a sparer of protein, but it is such only to a very limited extent.
4. It is improbable that the quality of human stock has been at all injured or adversely modified by the long-use of alcohol, although the effects on the individual are often devastating.
5. The therapeutic usefulness and value of alcohol are slight.
6. It may be a comfort and a psychological aid to the aged.
7. It does not increase, and it sometimes decreases, the body's resistance to infection.
8. By releasing inhibitions, it makes for social ease and pleasure, and herein lies one of its great dangers.
9. Its effects are best studied by changes of conduct.
10. It impairs reason, will, self control, judgment, physical skill and endurance.
11. It may produce situations from which crime and social lapses result.
12. It is a frequent destroyer of health, happiness and mental stability.
13. Its use commonly lowers longevity and increases mortality.
14. It is used primarily for its psychological effect as a means of escape from unpleasant reality.
15. It constitutes an important community health problem.

He correctly states the chief problem confronting the world today in relation to the use of alcohol as the necessity for each individual to "decide for himself whether his own personal satisfaction in the escape from physical and mental unpleasantnesses, which alcohol in moderation may bring him at the cost of appreciable hazards to his own health and to his livelihood, warrants his exposing others, less capable of moderation, to opportunities of becoming users of alcohol to their and society's damage and cost."

Enfance et hérédité. Par A. Lesage, médecin honoraire des hôpitaux. Paper. Price, 20 francs. Pp. 104, with illustrations. Paris: Masson & Cie, 1933.

This is a spontaneous outpouring of observations in two parts and nine chapters to demonstrate that "the living are governed by the dead." The first portion considers in five chapters the subject of heredity in general. The author points out the limitations of tubularly viewing bacteriology and chemistry. He insists that the view must be broader to include the forebears or source of the child who is sick. In other words, it is important to know that a given child has pneumonia but equally important to know what kind of child it is who has the pneumonia. The second chapter of three paragraphs and nine lines concisely states that syphilis tends to be latent. The rest of the first part considers stigmas of malnutrition along the lines of loss of weight in the new-born, growth of cranial bones, and weight-height relationship and debility. He describes the hereditary factor in organ and tissue pathologic trends. Then he mentions the inheritance of infections and intoxications. He devotes a small paragraph to the hereditary manifestations that break out suddenly, often at a certain age. Finally, he describes the inheritance of the arthritic diatheses which Comby has described. He includes in this seborrhea, eczema, asthma, obesity, gout, kidney and liver colic, hemorrhoids, migraine, rhinorrhea and bronchorrhea. He points to the fact that these various conditions seem to unwind like a ribbon from infancy with its eczema to old age with its arthritis deformans. The greater part of the book is devoted to the arthritic conception. This small volume gives some suggestion of the French point of view.

A Health Workbook for College Freshmen: An Orientation Course in Personal, Home, and Community Hygiene. By Kathleen Wilkinson Wootten, M.A., (Mrs. H. Stewart Wootten), Professor of Health, Head of Department of Health and Physical Education, Georgia State College for Women, Milledgeville, Georgia. Second edition. Paper. Pp. 214, with illustrations. Milledgeville, Ga.: The Author, 1934.

This is an excellent and comprehensive college workbook on health, as its title indicates. Its forty-seven chapters proceed from a definition of health and an evaluation, through health status and health maintenance of the individual, and preventive medicine versus superstitions, to a study of the structure and functions of the human body, which begins in chapter 6 and goes through chapter 27; chapters on hygiene, beginning with 28 and going through 37; chapters on public health, beginning with 38 through 44, and then chapters on rest, leisure, and the achievement of individual health. The book is well documented and based on thoroughly authentic sources. The lesson helps in the way of activities and questions are excellent. One might be disposed to question the wisdom of such detailed health records as are presented in the self-rating health inventory, or score, except perhaps as a teaching instrument. Certainly no student should be advised to make any attempt at keeping the health rating in such detail after graduation. The exceptional completeness of the workbook makes it an excellent textbook on hygiene for college students.

Bright's Disease: A Clinical Handbook for Practitioners and Senior Students. By J. Norman Cruickshank, M.C., M.D., D.Sc., Senior Assistant to the Muirhead Professor of Medicine, University of Glasgow. Cloth. Price, $3.75. Pp. 208. Baltimore: William Wood & Company, 1933.

The confused nomenclature and overelaborate classifications that are found on the subject of nephritis have created a field for simple and lucid textbooks on the subject. Larger treatises have recently been published that leave little to be desired in the way of clarity, but handbooks such as this have merit. They meet a practical need for practitioners in supplying a short account of the clinical application of modern views of the nature of Bright's disease. This book is in the nature of an outline of recent work on the subject. The clinical aspects are always featured and much of the detailed biochemical and experimental data has been purposely omitted. This book is not intended and should not replace some of the more comprehensive works on the subject but is a valuable adjunct to such books in providing a concise outline of the subject. The data in the book are clearly presented and well organized. The bibliographic references are well selected and are adequate for elaboration of the text. The book is well balanced in fundamental information and in clinical and pathologic description. Treatment receives adequate consideration and is logically presented. It is recommended to the practitioner who desires a concise, authoritative outline of modern information on Bright's disease.

Die Haut- und Geschlechtskrankheiten: Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof. Dr. Leopold Arzt und Karl Zieler. Lieferung 8, Band IV. Syphilis der inneren Organe. Von Prof. Dr. Heinrich v. Hoesslin. Syphilis des Nervensystems. Von Prof. Dr. Heinrich Pette. Syphilis des Bewegungsapparates. Von Prof. Dr. Hermann Schlesinger. Syphilis des Auges. Von Prof. Dr. Georg Lenz. Paper. Price, 8 marks. Pp. 349-502, with 49 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1933.

Die Haut- und Geschlechtskrankheiten: Eine zusammenfassende Darstellung für die Praxis. Herausgegeben von Prof. Dr. Leopold Arzt und Prof. Dr. Karl Zieler. Doppel-Lieferung 9/10, Band IV. Syphilis der inneren Nase, des Kehlkopfes, der Luftröhre und des Ohres. Von Prof. Dr. Heinrich Neumann. Syphilis der männlichen Geschlechtsorgane und Syphilis der inneren weiblichen Geschlechtsorgane mit Brustdrüsen. Von Prof. Dr. Moriz Oppenheim. Die angeborene Syphilis. Von Prof. Dr. Wilhelm Kerl. Die Bedingungen des verschiedenen Verlaufes der Syphilis. Von Prof. Dr. Alfred Stühmer. Erkennung und Untersuchung der Syphilis. Von Prof. Dr. Walther Schönfeld. Voraussage und Heilung der Syphilis. Von Prof. Dr. Karl Zieler. Die Behandlung der Syphilis. Von Prof. Dr. Paul Linser und Priv.-Doz. Dr. Karl H. Vohwinkel. Die Behandlung der Syphilis mit unspezifischen Mitteln (Malaria, Rekurrens, Saprovitan, Pyrifer, Zittmann-Dekokt). Von Prof. Dr. Friedrich Bering. Durchführung der Allgemeinbehandlung im einzelnen bei den verschiedenen Formen der Syphilis. Von Prof. Dr. Paul Linser. Paper. Price, 14.40 marks. Pp. 503-804, with 59 illustrations. Berlin & Vienna: Urban & Schwarzenberg, 1933.

These volumes maintain the general trend of excellence of the previous contributions. The fundamental facts on visceral syphilis are presented by experts in the various departments of medicine. It is difficult to single out any one contribution for special mention. The general principles of modern syphilotherapy are well discussed. A conservative estimate of the newer antisyphilitic remedies is given. The point of view of the student and the general practitioner is maintained.

Poetry of the Insane. Compiled by Dr. Charles E. Mayou. Fabrikold. Price, $1.50. Pp. 112. Baltimore: Waverly Press, Inc., 1933.

The author, a physician with poetry as a hobby, has here collected some contributions by persons said to be insane, who handed him their poems while he was attending physician in the Illinois State Hospital and in various other institutions. The poems seem to establish his belief that the psychotic mind has all the hopes and aspirations common to the normal mind. These poems help the physician to an insight into the mental processes of those whom he attempts to heal. Certainly by any definition of poetry many of the items here included rank high. On the other hand, some of the rhymes rank with the output of children 12 years of age. For all interested in either psychiatry or poetry this collection will have a special appeal.

A German Doctor at the Front. (Die Front der Arzte). By Professor Dr. Wilhelm His. Translated from the original German by Colonel Gustavus M. Blech, Medical Corps, Reserve, and Brigadier General Jefferson R. Kean. Cloth. Price, $2.50. Pp. 230. Washington, D. C.: The Military Surgeon, Army Medical Museum, 1933.

The war experience of an illustrious German scientist and clinician is delightfully told in this book. It is not a pedantic narrative objectively committed to print but a human exposition of the author's experiences as medical inspector in Russia and Asia Minor. The facts as the writer observed them are presented without partisan bitterness but with a sympathetic understanding of loyalty and patriotism on both sides. Only a man with such a charming philosophy could have written such a book. Pursuing his medical labors in all possible situations, the author never lost his sense of humor. The story he tells will interest both the layman and the medical man. It is the physician, however, who will glean most from its pages. Mixed with the author's literary charm are medical gems on clinical medicine, epidemiology and sanitation. The settings for his narratives are unique and he has exhausted all their possibilities.

Tabulae biologicae periodicae. Herausgegeben von C. Oppenheimer und L. Pincussen. Band II, Nr. 3 (Tabulae biologicae, Band VIII, Nr. 3). Paper. Price, 55 marks, complete volume. Pp. 241-320. Berlin: W. Junk, 1932.

Tabulae biologicae periodicae. Herausgegeben von C. Oppenheimer und L. Pincussen. Band II, Nr. 4 (Tabulae biologicae, Band VIII, Nr. 4). Paper. Price, 55 marks for 4 parts of Band II. Pp. 321-416. Berlin: W. Junk, 1933.

Tabulae biologicae periodicae. Herausgegeben von C. Oppenheimer und L. Pincussen. Band III, Nr. 1 (Tabulae biologicae, Band IX, Nr. 1). Paper. Price, 55 marks for 4 parts of Band III. Pp. 144. Berlin: W. Junk, 1933.

This compilation, issued periodically in journal form, should be of value to research workers in experimental biology. It consists of brief reviews and tabulations presenting data on such subjects as muscle physiology, carotinoids, the photoperiodicity of plants, constants of arbacia eggs, derivatives of bile acids, saponins and proteases. These are chiefly in German, with an occasional section in English.

Behind the Scenes. By Maurice Chideckel, M.D. Cloth. Price, $2. Pp. 275. New York: American Medical Publishing Company, Inc., 1933.

Here in diary form is the record of the daily practice and interests of a physician. The book is much more likely to be enjoyed by medical readers than by the public, for whom it is more likely to have a morbid interest than any other. The author has a sense of the dramatic as well as a sense of humor. The introspective character of his observations will make the book especially interesting to psychologists.

Medical Women of America: A Short History of the Pioneer Medical Women of America and of a Few of Their Colleagues in England. By Kate Campbell Hurd-Mead, M.D. Cloth. Price, $1. Pp. 112, with illustrations. New York: Froben Press, 1933.

This is a painstaking study of the entrance of women into the broad fields of medicine. The book deserves to be more attractively presented as to both literary style and physical format.

Miscellany

MEDICAL EXHIBITS

At a Century of Progress International Exposition Chicago, May 26-Nov. 1, 1934

EBEN J. CAREY, M.D.
MILWAUKEE

The Chicago world's fair opens at 6 o'clock Saturday evening, May 26. The Hall of Science, dedicated last June, has nine acres of space in which exhibits of physics, chemistry, biology, mathematics, geology and medicine—both scientific and industrial—are displayed. The medical sciences occupy 40,600 square feet of floor space net (and the industrial section occupies 25,000 square feet. The exhibits of medical science will occupy a space 50 per cent greater than last year.

This is the second time in the history of international expositions in America that organized medicine, dentistry and pharmacy have presented to the public the story of their contributions to the progress of civilization.

The Medical Advisory Committee includes Drs. William Allen Pusey, chairman; Frank Billings (deceased), Ludvig Hektoen, Herman L. Kretschmer, Paul Nicholas Leech, Morris Fishbein, Arthur D. Black, Bert W. Caldwell, Julius Stieglitz, Benjamin H. Orndoff, A. S. Burdick (deceased), C. H. Searle, Lloyd Arnold and Franklin Martin, and Messrs. Thomas McMahon, R. A. Whidden, Edwin R. Embree, Julius Riemenschneider, H. C. Christensen, Will J. Cameron, Harry C. Phibbs, S. DeWitt Clough and George H. Merck.

The objectives of the exhibits on health education by the visual and auditory methods are: (1) to compare health conditions of a hundred years ago with those of today; (2) to instruct the public in the intricacy of the living human machine and to give warning not to meddle with it by dangerous self medication; (3) to interest the layman in the scientific story behind the physician's services and opinions regarding health and sickness; (4) to show that compassion for suffering humanity and not commercialism ruled the lives of the great discoverers and practitioners of medicine; (5) to prove to the public that many chronic diseases, such as cancer, tuberculosis, heart and kidney disorders, and diabetes, are preventable and if detected early by a periodic health examination are curable; (6) to show the layman the value of discrimination in selecting one to evaluate health and detect the presence of disease and that the knowledge and developed skill of the duly qualified doctor is the patient's only safeguard and bulwark in the prevention and cure of disease.

THE MEDICAL EXHIBITS LAST YEAR

The exhibit, to be effective, must first attract attention. Subjects of common interest, such as the development, structure and function of the human body, tuberculosis, infantile paralysis, heart disease, cancer, goiter, pneumonia, Bright's disease and appendicitis, aid in drawing the public to a display. The method of presentation is vital, because an unfamiliar exhibit may have popular appeal if the unknown is presented in easily grasped stages of the known. This is exemplified by the urologic exhibit, in which the significance of blood and pus in the urine is revealed by a series of panels showing the anatomy of the urinary organs.

An exhibit should be definitely arranged so that a personal demonstrator may not be required. On the other hand, it is abundantly proved that a personal demonstrator giving short talks adds greatly to the attendance. The transparent man is a more popular object when the guides are delivering their three minute description than when no demonstrator is present. This likewise proves the value of movement, when it may be accomplished, in drawing the attention of the public. When the transparent man is uniformly lighted, it does not have the appeal that it has when the organs from head to pelvis are illuminated in rotation. The movement in the cancer exhibit, by the familiar growing flame of fire, has a value that is absent when the movement is stopped. The dynamic Dresden models and the teletactor for the blind are highly popular when the public can push a lever or press a button or can feel the vibration of the spoken voice on a diaphragm. The mechanism of the models must be substantial when dealing with large crowds such as those in the Hall of Science, or the models will become ineffective through being out of order half of the time. The personal demonstrator and the six foot book of maternal hygiene are attractive to the public. The combination of demonstrator, careful arrangement, adequate light, harmonious color and rhythmic movement in relation to a familiar subject are the qualities that attract attention.

After the attention has been arrested by a display, it is necessary to hold or retain the interest of the visitor. This is accomplished by simplicity of presentation. If the exhibit is easily seen and understood by a definite form, logical sequence and labels, short and clear, the observer usually lingers. If the exhibit is poorly lighted, cluttered, hard to follow, and has lengthy labels finely written, the people pass it by.

The public is interested in reality. Actual specimens of human embryos and sections of the human body have more appeal than pictures. This is no more morbid curiosity on the part of the public than it is on the part of medical students. This holds true for the interest that diseased organs, such as cavitation of the lungs in tuberculosis, have for the lay observer. The public is interested in disease and the changes from health manifested by a diseased organ. The public is vitally interested in anything that may affect the human body in disease. The average man is no different than the doctor in this respect of interest, except in degree.

Next to the actual specimens, lifelike models, such as those showing the stages in the surgical removal of an appendix, hold the interest of the public. Dioramas of historic milestones in medicine are nearer to reality than pictures and therefore draw public notice. This is likewise proved by the sculpticolor, which has an effective emotional appeal in showing the physician's service to the sick child in the booth of "The Family Doctor." The musical accompaniment for "The Family Doctor" at the bedside is well chosen and arouses the desired emotions of past sad memories in the mind of the visitor when the plaintive melody and minor chords of the adagio movement of Beethoven's Moonlight Sonata are vibrating. The sympathetic services of "The Family Doctor" will linger long in the minds of grateful people, because adequate visual and auditory memories are established by this exhibit. I am not ashamed to say that each time in more than two dozen visits to this masterpiece a lump arose in my throat, because the artistic combination of color, form and minor harmonic sound in a dignified environment appeared so perfect in conveying the meaning of the story of sadness of apprehensive parents and of the doctor's unselfish services at the bedside of a sick loved one. This exhibit appeals to the heart as well as to the mind. This may be beyond the pale of the so-called strict scientist, but there are many things in medical practice that are still beyond the analysis of science. The exhibit attracts the public, and that is proof enough of its success. The methods used are deserving of close study on the part of any scientist who attempts to tell his story to the layman. I am reminded in this connection of Leonardo da Vinci's statement that "the higher science develops, the nearer it approaches art; the greater the perfection in art, the nearer it approaches science."

The moving picture is used effectively in showing the operation where ether is first used as an anesthetic. This modality may be overused when the pictures are too long and inadequately labeled. This also holds for sound pictures. On the other hand, "The Talking Tooth" in the dental exhibit uses sound in an effective manner.

When an exhibit may be prepared in order that a 12 year old child is able to grasp and study the demonstration, it is evidence that the exhibitor has a clear, firm and simple hold on the subject presented. If such a child is not attracted to the exhibit and his interest is not retained, it is usually a sign of inadequate thought and preparation on the part of the demonstrator or inadequate knowledge of the subject presented.

From the Medical Section, Department of Exhibits, A Century of Progress International Exposition.

Owing to lack of space, several illustrations have been omitted. The complete article appears in the author's reprints.

I know of nothing in which the gaps that still exist in medical knowledge, in spite of the brilliant advances made in the last hundred years, stand out so glaringly as in an exhibit on a subject on which medical science has not as yet shed its light.

In this second attempt in America to present medical science to the public, it is a conceded fact that the ones who benefit the most are the medical scientists who plan and prepare the exhibits. A good demonstration is an index that the teacher has a simple and true understanding of the relationships of the subject presented. When scientific objective knowledge cannot be conveyed in a clear-cut exhibit without complex terminology, it is a sign that knowledge is lacking.

An effective pedagogue in science is one who is a good demonstrator and allows ample means for the observer to exercise his faculties of sight, touch and hearing by actual participation in the demonstration. An effective exhibit is an index of a good teacher who knows his subject. The content of the exhibit may have a natural attraction. The observer tests his present knowledge in a satisfying way by recognizing and recalling it to memory. The exhibit may arouse curiosity by comparison and contrast.

If an exhibit is arranged in an effective manner, it manifests the application of the laws of teaching. The student or observer must have the attention focused. It is up to the exhibitor to gain the attention in order to retain or focus it. If the content of the exhibit does not have natural appeal it must have a stimulated one in order to arouse the curiosity of the passer by. The exhibit must be definitely arranged and labeled in order to obtain the desired response on the part of the public. All annoyance and inconvenience, such as poorly understood long technical words and inadequate light, should be eliminated.

Everything exhibited should be a component part of a well coordinated whole in order that the layman may easily organize and integrate the meaning of the exhibit in his mind. The resultant clear-cut picture or story of the object of the exhibit is more valuable than a dictionary of words and proves that the exhibitor knows what he is trying to demonstrate. The greater the number of simple associations related to the main theme of the exhibit that are conveyed to the mind of the observer, the longer and more easily will the exhibit be remembered by those for whom it is prepared. An attractive exhibit that invites repeated visits has intrinsically the quality to be remembered because of the periodic review by the observer.

FUTURE OF MEDICAL EXHIBITS IN THE UNITED STATES

The medical exhibits in the Hall of Science at A Century of Progress exposition of 1934 represent three years of planning, assembling and constructing work on the part of the majority of the exhibitors. The expenses of preparing each exhibit and transporting it to Chicago are defrayed by the university, foundation or association sponsoring the display. A Century of Progress gives the space free of charge where an exhibit fits into the general plan and policy of development laid down by the Medical Advisory Committee.

The doctor needs public cooperation in conducting periodic health examinations in order to detect the early stages of tuberculosis, cancer, diabetes, goiter, heart vascular, kidney and certain mental diseases and physical deformities. Mass education of the public of what the doctor now has to offer may be effectively done by the exhibit method. The layman has proved that he is as interested in exhibits of health and disease as he is in museums of art and natural sciences.

The exposition of 1893 in Chicago left a heritage in the Field Museum of Natural History. Will A Century of Progress expositions of 1933 and 1934 point the way to the value and the establishment of a museum or hall of health? This is a question that organized medicine, dentistry and pharmacy should seriously consider. If the duly qualified physician, dentist and pharmacist, through their respective legitimate organizations, do not assume the rôle of teachers and interpreters in the mass education of an interested and eager public in matters of health and disease, who will?

POPULAR LECTURES ON MEDICINE IN HALL OF SCIENCE

Members of the Chicago Medical Society and the American College of Surgeons will give lectures each afternoon in the Hall of Science for the public on some popular subject on medicine and surgery.

THE FOREIGN EXHIBITS OF MEDICAL SCIENCE

The names of the contact officials or chairmen are mentioned after each institution or association. More than 500 medical scientists and physicians planned or executed certain parts of the exhibits. Grateful acknowledgment is here expressed to every one who aided to make the displays of the medical section a success.

England.—The Wellcome Research Institution of London (Sir Henry Wellcome): The Wellcome Historical Museum has dioramas that illustrate epoch-making events in British medicine and surgery. The Wellcome Museum of Medical Science demonstrates by models, charts, diagrams and the like the causes, methods of infection, symptoms, prevention and treatment of malaria, trypanosomiasis, kala-azar, leprosy, plague and bilharziasis. The Wellcome Bureau of Scientific Research has contributions from the departments of protozoology, helminthology, bacteriology and experimental pathology. Trypanosoma grayi in the tsetse fly, series of worms parasitic to man and animals and Rift Valley fever—a newly discovered disease in British East Africa—constitute part of the exhibit. The Wellcome Entomological Field Laboratories and Physiological Research Laboratories have exhibits that deal respectively with the mosquito and with the physiologic, pharmacologic and serologic problems on the production of diphtheria, tetanus and other antitoxins. Diseases in animals such as lamb dysentery, dog distemper, braxy in sheep canine jaundice, bacillary white diarrhea in poultry, tetanus in horses and fowl pox are presented by appropriate exhibits. A model of the Wellcome Research Institution in London, a model of the floating laboratory presented by Sir Henry Wellcome to the Sudan government on the Nile, and a model of the mobile field laboratory given to the British war office during the Great War are exhibited.

France.—The Institut Pasteur (P. Lecomte du Nouy and W. Roux, deceased): An illuminated map of the world, 12 by 20 feet, shows the distribution of Pasteur institutes. By means of photographs, in a space 12 by 20 feet, are effectively presented the life of Louis Pasteur, his work on crystals, the silkworm, fermentation in beer, wine and milk, and the relation of microbes in human and animal diseases, and the life and work of the pupils of Pasteur and their influence on human welfare.

Germany.—The Robert Koch Institute (F. Neufeld): By means of models, photographs, portraits, drawings and charts are displayed the life and work of Robert Koch, who discovered the tubercle bacillus in 1882.

Public Health Exhibit of Berlin (von Drigalski): By means of models, charts and diagrams, the recent advances of public health in Berlin are portrayed.

The Deutsches Hygiene Museum, Dresden, Saxony (exhibits purchased by A Century of Progress): The Transparent Man lent by the Mayo Foundation, is a life-size model made out of cellon, a transparent material, to show all interior organs, illuminated in rotation, in their relation to the skin surface. Other dynamic models manifesting human structure and function, which may be motivated by the observer, are as follows: the different kinds of joints; nodding and rotating movements of the head; circulation of one blood corpuscle; cooperation of the diaphragm and lungs in respiration; abdominal breathing, showing the movement of the chest and diaphragm; movement of the rima glottidis; the larynx in a laryngopharyngeal mirror; formation of sounds; example of reflexion—knee jerk; torso of wooden man—sagittal section in eight parts; horizontal sections of wooden man, in fifteen parts.

Italy.—Medical exhibits from the Italian government (E. Bompiani): By means of models, charts, photographs, appliances and the like are indicated the contributions of the fathers of medical science, such as those of Galvani, Malpighi, Morgagni, Spallanzani, Leonardo da Vinci and Vesalius.

Holland.—Central Institute for Brain Research, Amsterdam (C. U. A. Kappers): With the aid of specimens, models, casts, charts and drawings, the structure and function of the nervous system are demonstrated.

UNITED STATES EXHIBITS OF MEDICAL SCIENCE

American College of Surgeons (Franklin Martin).—By means of transparencies, models, dioramas, illustrated maps,

photographs and replicas, the progress of hospitals and surgery in America during the past century are depicted. A replica of the Lister exhibit in the Wellcome Historical Medical Museum is displayed. This consists of a diorama of the Lister Ward at the Glasgow Infirmary; photographs of Lister, his family, his degrees, letters patent, records, and the like; in show cases are displayed his pioneer experimental work on antisepsis and appliances used by him, and also replicas of furniture used by him.

AMERICAN HOSPITAL ASSOCIATION AND CHICAGO HOSPITAL ASSOCIATION (Bert W. Caldwell and Paul H. Fesler).—Photographs and charts showing a century of progress in hospitalization.

THE AMERICAN INSTITUTE FOR THE DEAF-BLIND (Robert H. Gault).—This exhibit relates to the development of methods of teaching the deaf and to the evolution of braille for the blind. A display of the Gault teletactor shows a method of enlarging the use of the senses of touch and vibration in connection with the education of the deaf. The apparatus consists of a microphone, a specially contructed amplifier and a vibrator or receiver. The visitor, resting his fingers on the receiver and speaking into the microphone, may feel his own voice. Similarly he may feel his companion's voice. Moreover, through a duplicate apparatus he may feel whatever programs are being broadcast from a given radio station. Charts and diagrams explain the fundamental scientific questions that are involved. There is emphasis on the essential similarity stimuli on the one hand by ear and learning their meaning, and receiving and interpreting the same stimuli, greatly amplified, by way of the organs of touch and vibration on the other hand. Photographs and occasional demonstrations illustrate the method by which the apparatus is being used toward promoting the interpretation of speech and improving the production of spoken language on the part of the deaf. Photographs and other forms of illustration show some features of various stages in the development of means of education of the deaf and the blind. Models and maps constructed manually by deaf pupils in the laboratory of the institute are used to suggest to the visitor the makers' scope of reading ability and skill in computation.

AMERICAN MEDICAL ASSOCIATION (T. G. Hull).—Dioramas, mechanical displays and transparencies are used to demonstrate progress in (1) medical practice, (2) medical care, (3) medical education and (4) health education. Bas-relief statuary portrays Aesculapius, the god of medicine, Hygeia, the goddess of health, and Hippocrates, often called the father of medicine. There are contrasted the difficulties of the saddle-bag doctor with those of the physician of today with his numerous facilities. The many medical discoveries of the past century shown in brief review emphasize this point. It is also portrayed how a frequent physical examination tends toward good medical care and how self diagnosis and self medication result in poor medical care. A relief map of the United States has actual reproductions in miniature of the medical schools of the country. The rôle of the modern hospital as a place to which people now go to get well or to maintain their health is contrasted with that of a century ago. The correlation of community health and personal health is depicted by two new displays, and a question and answer service on health topics, so popular last year, is continued and amplified this year.

AMERICAN PHARMACEUTICAL ASSOCIATION (H. C. Christensen).—As before, the exhibit will depict and dramatize the historical, educational and professional (scientific) phases of pharmacy. New features will emphasize the progress of American pharmacy during the past century, directly bearing on the service to the medical profession and the public at large. Visitors will be told of the development and standardization of drugs and drug preparations during the past hundred years, contrasting the old with the new, thus giving them a new conception of "the man behind the prescription case." One who enters the exhibit from the corridor will find at the left the Historical Rotunda with a series of seven brilliantly lighted recesses showing outstanding pharmacists and their contributions to pharmacy and medicine. In the center of the rotunda will be a reproduction of the famous Ebers papyrus, the earliest known book of remedies, which dates back to about 1500 B. C. Immediately behind the Historical Rotunda will be the exhibit of the United States Pharmacopeia and the National Formulary. Here the story of these books of standards for drugs and medicines will be told both by displays and by an automatic picturol machine. In the log cabin replica of the first apothecary established in Chicago in 1832 by Philo Carpenter, reproduced against the back wall of the exhibit space, will be housed an actual reproduction of an apothecary shop of a hundred years ago. Just to the right of the old apothecary shop and in striking contrast is located a modern pharmaceutic and chemical laboratory, in which will be conducted a program of demonstrations in prescription compounding, testing drugs for purity, examples of accuracy in weighing and measuring, and the like. In the next two recesses, the story of digitalis and ergot will be portrayed in dioramic views. The next recess will contrast the art in pharmacy a century ago with today by showing apparatus and utensils used during these periods. The growth and development of pharmaceutic education, legislation and service to the public will be depicted in the next group of exhibits. In the foreground will be a model of the American Institute of Pharmacy (pharmacy headquarters building). To the right of these will be a materia medica exhibit showing the evolution of medicinals. There will also be two displays in the corridor walls of the exhibit which will show drugs of the Bible, animal drugs, and the like.

Part of the exhibit of the American Medical Association.

AMERICAN SOCIETY FOR THE CONTROL OF CANCER (James Persons Simonds and A. H. Estabrook).—The purpose of this

exhibit is to demonstrate the fact that cancer, if discovered and treated in the early stages of the disease, is to a great extent curable. In a mechanical unit, cancer is compared to a fire: In its earlier stages cancer, like a small fire, can be controlled; but in its late stages, as in a huge conflagration, there is little hope for control. Material on the nature, incidence, prevention and treatment of cancer is presented in four dioramas. Models, drawings and charts are used to present the need of attention to all the early symptoms of cancer. The history of the treatment from ancient times and the present methods of treatment by surgery, x-rays and radium are depicted.

American Urological Association (Herman L. Kretschmer and George C. Smith).—With the assistance of drawings, charts and models is emphasized the need of consulting a physician when blood and pus are in the urine. Tuberculosis, tumors, stones of the urinary tract and disease of the prostate gland are developed in a general way, with a panel devoted to each disorder. The development of urologic instruments is presented, with the aid of Mueller of Chicago.

American Veterinary Medical Association (H. Trenton Hoskins).—The theme of the exhibit will be expressed in a series of eight dioramas, each one depicting an important activity of the modern veterinarian. The area of each diorama will be approximately 3 by 3 feet, with a height of about 2½ feet. These will be arranged in a straight row against the back wall of the booth. The front of each diorama will be glazed and each one will be dust proof and properly illuminated. Above each diorama will be a sign carrying a brief legend, such as Small-Animal Practice, Country Practice, Military Medicine, Laboratory Research, Field Investigations, Education, Public Health, Biological Manufacturing. In addition, each diorama will include a small card carrying a lengend, such as: "Intelligent treatment is based on correct diagnosis—not guesswork." "A prosperous agriculture is dependent on a productive animal industry, which in turn is dependent on a competent veterinary service." "The up-to-date veterinarian practices prevention rather than cure." "Veterinary inspection makes your meat and milk safe."

The wall space not occupied by the dioramas will be utilized to display appropriate photographs, statistical charts and other material of a purely educational character. There will be a model of a cow, showing what takes place when the animal swallows a foreign body, such as a nail, resulting in the condition known as traumatic pericarditis. A small exhibit of animal parasites will be shown.

Cleveland Clinic Foundation (George W. Crile).—Motion pictures present the discovery of the circulation of the blood by Harvey in 1628, the development of modern methods of transfusion and the formation of autosynthetic cells. The history of blood transfusion is shown by the use of actual instruments, with the aid of Mueller of Chicago and Kimpton of Boston. The physiologic interrelations of the thyroid, suprarenal, pituitary and sex glands are illustrated by specimens, charts, models and drawings. The history of the roentgen ray consists of an x-ray apparatus and tube used in 1896 and a number of roentgenograms, books and tubes made within a few weeks after the discovery of the x-rays in 1895. On a mechanical device, a number of pictures are shown in succession which will contrast early and present-day x-ray tubes, apparatus and pictures.

Committee on Diabetes (Rollin T. Woodyatt and Morris Fishbein).—An exhibit on diabetes will show the public what the disease is, its causes, and its curability with diet and insulin. In spite of the fact that now, since insulin has become available, no one with diabetes need die of the disease, the mortality rate in this country has been climbing rapidly. Many do not know about insulin, many do not know how to use it, some refuse to try it, and some cannot afford it. The exhibit will show the principles of dietetic care and will give some idea of the use of insulin and of the prevention of those injuries to the feet and legs which often have tragic consequences to the diabetic patient. The exhibit will carry a message of hope and encouragement to the patient with diabetes. There will be pictures of patients strong and well after years of treatment. There will be representative diets shown in wax, and also samples of insulin in the several dosages.

Chicago Board of Health (H. N. Bundesen).—With apparatus, stereopticon lantern slides, charts and diagrams, the history of the control of preventable diseases in Chicago during the last hundred years is disclosed. Health educational work along various lines is indicated.

Dental Health Exhibit (Arthur Black).—The dental health exhibit of 1934 points the way to the prevention of dental ills and to better health through the simple means of proper care of the teeth from early childhood. The major exhibits are:

1. Nature, Builder of Teeth. A twelve minute talking motion picture shows the development of the teeth, jaws and face from birth to the age of 18 years. This is a striking illustration of the relation of the teeth to facial symmetry and beauty. Instructions regarding the development of the teeth through proper diet and their care during childhood are presented in a twelve minute discussion by phonograph transcription immediately following each showing of the film.

2. The Talking Tooth. A framed ground glass, 10 feet high by 4 feet wide, behind which there are 1,164 small electric lamps arranged in an elaborate system of shadow boxes, portrays in brilliant colors the beginning and progress of a cavity in a molar. The tooth tells its own story by a phonograph, which operates 175 lighting changes. Directions for preventing serious decay are given.

3. Tooth Brushing. A motor-driven, revolving, hexagonal exhibit with six aluminum heads and hands continuously demonstrates proper methods of brushing the teeth.

4. Mastication. This motor-driven exhibit shows the jaw movements of a tiger, representative of meat-eating animals; of a mountain sheep, representative of plant feeders, and of man, illustrating the combined motions of the other two. There is also a dentist's instrument used in arranging artificial sets of teeth so that they are exactly adaptable to the jaw movements of each person.

5. George Washington's Artificial Teeth. These are exhibited in a steel pedestal with a nonshatterable glass top and are accompanied by photographs taken before and after the natural teeth were extracted, which show the marked change in facial contour and expression.

6. Pyorrhea. A framed ground glass 10 feet high by 4 feet wide illustrates by the reflection of 1,178 small electric lamps the gradual destruction of the gum and other tissues in cases of pyorrhea. The process is described by a phonograph, which also operates the lighting circuits.

7. Professional Dental Education. A beautiful model of the building occupied by the first dental school, founded in Baltimore in 1840, is shown alongside a section cut through a modern dental college building, which shows a separately equipped and illuminated miniature room for each course of study. Accompanying this is an exhibit of early dental books, from 1530. Description is given by phonographic transcription.

8. A Century of Progress in Dental Service. A revolving stage shows dental office equipment of 100 years ago, fifty years ago and today; also an office equipped especially for children. The various periods have been worked out to the most minute details. Description is given by phonographic transcription.

9. Facial Beauty. The effect of dental conditions on facial beauty and expression is shown by about 100 plaster models of faces made before and after various methods of treatment, consisting principally of the correction of irregularities of children's teeth, of the use of properly designed sets of artificial teeth and "plastic" operations to remove facial scars and other defects for adults.

10. Balanced Diet. The importance of proper diet in building and maintaining sound teeth throughout life is demonstrated in a large alcove window.

11. Paintings, Prints and Cartoons. Sixteen oil paintings and drawings by famous artists from 1610 to 1879 are shown.

12. Bronze Tablets. Twenty-one bronze tablets recite noteworthy achievements of famous dentists from 1520 to 1933. There are about 100 other exhibits in show cases, consisting of many curious old instruments used during the past 200 years, good and bad forms of tooth brushes, the first demonstrations of "laughing gas" and "ether" for surgical operations,

by two dentists, and cuneiform tablets from ancient Assyria describing dental treatment 2,600 years ago, facial models of cancer and syphilis of the mouth and face.

CHICAGO GOODWILL INDUSTRIES (W. C. Loague).—The equipment consists of a large floor loom, table loom, bicycle saw, work bench and table. These pieces are arranged in a semicircle and will constitute the major part of the display to demonstrate treatment. Patients from the Goodwill Workshop receive this treatment under supervision two hours daily.

CHICAGO MEDICAL, DENTAL AND ALLIED SCIENCE WOMEN'S ASSOCIATION (Katherine K. True, Lena K. Sadler and Bertha Van Hoosen).—By means of an automatically operated book 6 feet high and 4 feet wide, there are questions and answers on maternal hygiene. With the aid of artistic paintings and models, the relation of food, clothing and appropriate environment for the expectant mother is shown.

CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM (Allan J. Hruby).—The central object in this exhibit will be a mural in oils measuring 8 by 5 feet. In this painting the central figure in the middle foreground is the "Sower of the Seed." The figure of the sower is taken from an actual portrait of an advanced tuberculosis patient at the Sanitarium. It shows the typical configuration of the advanced consumptive and is represented as advancing toward the foreground somewhat in the manner of Millet's sower with hand extended broadcasting the seed. Behind him is the desert trail over which he came, bones and skeletons representing the tragedy of tuberculosis. In the right foreground is a female figure representing humanity prostrate and passive, typifying the passive attitude of public health authorities in general toward tuberculosis. In the left foreground is the figure of the mother surrounded by her children, her arm extended in a protective and defensive attitude. Framing the painting is an encircling branch of weeping willow, typifying again the tragedy of tuberculosis. In the left background represented in the clouds is Father Time sharpening his scythe against the harvest which he knows will come. The theme of the whole picture portrays tuberculosis as an infectious and contagious disease. The picture will in turn represent the central motif of the entire exhibit. The purpose is to give the thousands of visitors at the Century of Progress the concept that tuberculosis is actually and beyond doubt a contagious disease in the same sense that smallpox, leprosy, scarlet fever and other diseases are. To emphasize further the infectious nature of tuberculosis, several microscopes will be on hand under the supervision of a laboratory attendant. Slides will be prepared showing the tubercle bacilli in various concentrations, and the people as they pass will have an opportunity to see for themselves the causative organism of tuberculosis. Leading on from etiology to pathology, a dozen or two pathologic specimens suitably prepared will be on exhibit. These specimens will show changes in the lung structure due to tuberculosis and will be sufficiently distinctive to be readily intelligible to the lay audience. Furthermore, a large double rack, showing a series of x-ray plates, will be on exhibit. These plates, of interest both to the profession and to the public, will show in series the gradual development in the lung of the tuberculous lesion. In this section also will be several plates showing vividly the effect of pneumothorax on the lung and showing the various degrees of collapse. As explanatory of the tuberculosis problem and its seriousness and magnitude, even at the present time, a series of charts will be on hand, showing the morbidity and mortality of tuberculosis even today in this city and throughout the country. Other charts will be prepared showing the cyclic decrease in tuberculosis mortality down through the years. As a final measure of education it is proposed to have hundreds of instructive bulletins to be distributed free of charge to such as may be interested. A nurse or physician or both will be in continuous attendance to answer questions and to give detailed information concerning work of the Municipal Tuberculosis Sanitarium. The exhibit will emphasize the contagious nature of tuberculosis and lays stress on the public health measures necessary to prevent it.

CHICAGO RAPID TRANSIT COMPANY (Hart E. Fisher).—An exhibit will be presented on the evolution of resuscitation, showing the methods both manual and mechanical from the early ages down to the present through the medium of charts, transparencies, drawings and photographs. These are to be placed on one of the end walls in the exhibit space. On the opposite end wall will be displayed by charts, photographs and working models the scientific exhibit of Dr. Albert S. Hyman of the Witkin Foundation of New York, showing the artificial pacemaker for electrical stimulation of the heart in artificial respiration. At the back wall of the exhibit is to be placed a woodland scene through the use of art paper and painting. This wall will also carry the charts on electrical accidents and resuscitation with photographs showing the activities of the medical department in its research on electrical shock, burns, and its twenty years of periodic medical examination. In addition will be charts showing the research work on reaction time and mental testing of employees. On the floor, half of the space will be devoted to the showing of two working models of the adult and infant Drinker respirator, with manikins lent by Warren E. Collins, Inc., of Boston. There will also be two Emerson respirators, adult and infant, with working manikins lent by J. H. Emerson of Cambridge, Mass. The medical department of the Chicago Rapid Transit Company will exhibit one portable hand operated respirator and one adult respirator, a Panis respirator, the inversion method, the hanging tree method, the barrel method, the lungmotor, both adult and infant, the pulmotor, and the Lyon breathing apparatus. Also on exhibition will be an animated life size working model of the Schaefer prone pressure method, which is lent by the United Power and Light Corporation. The story will portray research in resuscitation, electrical accidents, periodic medical examinations, and mental and reaction time testing in the form of an educational feature for the general public.

CHICAGO MEDICAL SOCIETY AND WOMAN'S AUXILIARY (H. N. MacKechnie, C. H. Phifer and Sophia Brumbach).—The history of the Chicago Medical Society and related medical progress in Chicago are presented. Desks for registration of visiting physicians and medical auxiliary are provided.

CHICAGO ROENTGEN SOCIETY (Hollis E. Potter and Benjamin H. Orndorf).—The plan of the Chicago Roentgen Society exhibit is to show the average visitor the wide scope of usefulness of x-rays in diagnosis, together with something of the methods employed. The basic exhibit will be films showing twenty-five diseases selected because of their pathologic importance and because of x-ray value in their diagnosis. Each disease will have twenty-five 8 by 10 inch film copies showing the typicals and variables. Each disease unit will be introduced, explained and oriented on a few panels adapted to the average lay intelligence. For showing something of the methods of roentgen diagnosis, a running series of slides will be projected from a Balloptican on a transparent screen. For especial interest there will be a full sized man shown by reflected light on semitransparent paper behind and through which by pressing a button there will show at will ten roentgenograms of ten different parts of the same man. A second figure is planned on the same principle except that the light alternation is automatic and the whole figure will show by transmitted light through a full length x-ray film behind. All films used for the exhibit will be on acetocellulose (safety) base to avoid fire hazard.

HENRY FORD HOSPITAL (Frank W. Hartman and Roy D. McClure).—The exhibit of the Henry Ford Hospital, Detroit, will have models, appliances, transparencies, photographs and photomicrographs showing the tannic acid treatment of burns and oxygen therapy in pneumonia.

HOT SPRINGS NATIONAL PARK (Thomas J. Allen Jr.).—The exhibit of Hot Springs National Park is planned to show what the United States government is doing at that location to develop and operate an area for the use of the public in either regaining lost health or retaining and lengthening the period of good health. This being the only government-controlled area of its kind, it is an individual feature of government operations. The exhibit, in addition to its health features, is designed to show the history connected with the 102 years of government control of the resort, this period in itself being a century of progress in the use and application of natural hot mineral waters. The presentation is built around the large diorama feature at

the end of the space, in which a natural hot mineral spring arises from tufa rock that actually had been formed around one of the real springs in the park. The diorama shows a model of a portion of the famous Bath House Row in Hot Springs National Park, with a background of one of the wooded mountains of the park. In one upper corner of the background is a symbolic picture representative of an old Indian camp recalling the use of the spring water by the wandering Indian tribes in early days. The side walls of the exhibit are to be covered with photographic transparencies; on one side to be historical presentations from 1832 to more recent times and on the opposite side to be photographic transparencies of the modern use of hot water in the different bath halls and photographs of bath house exteriors. Descriptive matter, concise but interesting and explanatory, will be interspersed.

INSTITUTE OF MEDICINE OF CHICAGO (medicolegal, Oscar T. Schultz).—It is the aim of the medicolegal exhibit of the Institute of Medicine of Chicago to portray that (1) under the present organization of society it is necessary for the government to make official investigation of certain deaths and that such deaths constitute a not inconsiderable proportion (18.8 per cent) of all deaths that occur in a populous community; (2) the deaths that must be officially investigated fall into the four main classes of homicide, suicide, accident and sudden death; (3) the government has set up two different types of agency for such investigation, the coroner's office and the office of medical examiner; (4) impartial and thoroughly scientific investigation is important to society in the administration of justice and in the adjudication of claims for insurance and workmen's compensation. In a 20 by 40 foot space it is proposed to carry out this aim as follows: At the center of the forty foot wall space will be a diorama which will symbolize the tragedy and enigma of death. This will be flanked on each side by two smaller dioramas portraying graphically the four classes into which the death may fall: homicide, suicide, accident and sudden death. On each side of the diorama unit will be a painted panel. On one side this will be symbolic of the medical examiner system, showing a modern autopsy room, with a shrouded body and a gowned figure of a physician ready to begin his examination; in the background will be sketches indicative of the scientific procedures that a proper examination must make use of: pathology, bacteriology and serology, chemistry and toxicology, and microscopy. The panel of the opposite side will be symbolic of the coroner system. It will depict the usual type of coroner's jury being sworn in for the inquest in the presence of the dead body as the law requires. In the background, corresponding to the scientific procedures in the other panel, will be sketches portraying coroners' juries at different periods in history, the object being to illustrate that the office has not changed much since its earliest days. This graphic material will in turn be flanked on each side by a lettered panel giving succinctly the essential features of the two systems in use in this country. This will include such data as origin, mode of selection, tenure of office, qualifications, duplication of other agencies of government and cost. On the side walls will be diagrams showing the organization and relationships within the judicial administrative system of the continental medicolegal system with its institute of legal medicine. A similar diagram will show the same features of the two American systems. On each wall there will be a case containing a few well selected specimens to illustrate, without unnecessary gruesomeness, some of the features of the different kinds of death that must be officially investigated. With the specimen will be a sketched-in background to illustrate either some feature of the mode of death or the scientific procedure necessary to detect the cause of death.

LOYOLA UNIVERSITY OF CHICAGO (J. M. Essenberg).—The exhibit is designed to show the contribution of Loyola University to modern methods of teaching the structure of the human body, anatomy, and its development, embryology, to medical students. It consists of a large collection of human embryos and of several series of sections of the adult human body. The embryology collection is composed of carefully selected embryos and fetuses varying in age from a few weeks after conception to the time of birth. Transparent or "x-ray" preparations of actual babies are included to show the development of internal organs. Special attention is called to the envelops or membranes that surround the growing embryo. The origin, development and structure of the afterbirth is made clear by the use of different colors. Explanatory notes are attached to each preparation. The structure of the adult body is illustrated by sections or sectional anatomy, as it is called in medicine. Sections through all parts are displayed, and there are three series of these representing planes at right angles to each other. Every organ of considerable size is shown, and colors have been added to make structures easier to distinguish. Each section is mounted in a specially designed aluminum case with glass on both sides. This exhibit aims to give to visitors first hand information as the complexity, delicacy, dignity and beauty of our own body. It tries to supply the physical basis for the command "know thyself."

MARQUETTE UNIVERSITY AND THE MILWAUKEE COUNTY HOSPITAL (Francis D. Murphy and Joseph Grill).—The display consists of about 200 specimens illustrating the various types of Bright's disease. Each specimen is accompanied by photomicrograph pointing out the important lesion to be demonstrated. In addition, the case report is attached to each specimen. The histologic aspect of the subject will be illustrated by numerous photographs and life histories of the important contributors to the entire subject of Bright's disease. Original manuscripts of the earlier writers will be arranged in the booths. The object of this display is to emphasize the importance of Bright's disease as a cause of morbidity and mortality and to point out methods that are to be used in the prevention of chronic nephritis. At the same time there are many self-explanatory charts, which point out the most important features of the early stages of the various forms of Bright's disease. In the charts, which are framed and placed above the specimens, are given the chief causes and means of prevention of Bright's disease. It is generally accepted that chronic nephritis is a disorder that arises from attacks of acute nephritis which have occurred many years before and have gone unhealed. When chronic nephritis or Bright's disease develops, but little can be done for the patient; on the other hand, if the disease is recognized and vigorously treated in the acute or transitional stage following the acute, much can be done to prevent the development of the chronic phase.

MAYO FOUNDATION (Walter Alvarez).—This institution is developing three themes; namely, diseases of the digestive tract, the thyroid gland and the sympathetic nervous system. The information is presented with the help of transparent photographs, wax models, charts, motion pictures and lantern slides. A model of an x-ray laboratory and of Dr. Cannon of Harvard, in 1896, making the first roentgen studies of the stomach are shown. A collection of roentgenograms, wax models and actual gallstones illustrates the commoner lesions of the digestive tract, and a diagrammatic model of the stomach and the intestine indicates the situation of these lesions in the body. A large model of the thyroid gland in wax and seven lifelike wax masks display the appearance of patients with the different types of goiter and thyroid gland deficiency. The successive stages are shown in the extraction of a few grains of thyroxine, the active constituent of the thyroid gland, from 25 pounds of raw material. Large transparent photographs of dissections of the sympathetic nervous system are presented so as to orient the lay visitor. A large electrical thermometer enables visitors to measure the temperature of their hands and an electrical thermometer enables them to see how steady their nerves are.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL (James P. Simonds, Leslie B. Arey and Andrew C. Ivy).—The exhibit will consist of: 1. Charts, photographs, drawings and actual specimens illustrating the routine uses of animals in laboratories and the discoveries that have been made from experiments on them. Under the general title "Contributions of Animals to Medical Science and Human Health," each species of animal will be given credit for its contribution. 2. A series of photographs illustrating changes in methods of illustration in teaching anatomy under the general title "Forty Centuries of Anatomical Illustration." 3. A series of photographs and drawings illustrating progress in neurologic technic and in

neurologic surgery, dermatology and ophthalmology. 4. A series of charts, photographs, drawings and specimens illustrating infections of the hand; use of mucin in the treatment of gastric ulcer; distended dried stomach and intestine to show the structure of the gastro-intestinal tracts of different animals; pathologic specimens with explanatory notes illustrating some of the more common diseases. 5. Anatomic models. 6. The history of Northwestern University Medical School. 7. A display of charts showing the disease transmitted from animals to man.

OVARIAN HORMONES AND HUMAN EGGS (Edgar Allen and G. W. Corner).—Eggs of Man and Monkey: This exhibit will display photographs of human and monkey eggs as shed from the ovaries and recovered from the tubes at operation, human and monkey eggs in large follicles in the ovary, and the time of ovulation in the menstrual cycle.

Ovarian Hormones: Hormones of the ovary—theelin, corporin or progestin, and relaxin—the first from the follicles, the others from the corpora lutea. The reactions that these hormones have on the genital organs in rats, rabbits and monkeys, and a brief indication of their clinical possibilities. Samples of chemical fractions during the process of their extraction and crystalline preparations where available.

Panels: 1. Method of recovery of ova from the tubes and test for patency of the tubes in patients at operation. 2. Appearance of the living egg and its finer structure in section correlated with corpora lutea from which they have been extruded. 3. Additional photographs of eggs and a chart showing the time of ovulation in the menstrual cycle in women. 4. Human eggs from large follicles in the ovary in various stages of growth and degeneration. 5. Sections of ovaries and eggs of the monkey. 6. A chart of ovulation time and cycle length in the monkey. 7. Growth of follicles and other transformations in the ovaries of the pig during the estrous cycle. 8. Selective elimination of eggs during the course of their development in the pig ovary, and the premature induction of puberty in young rats by injections of hormones. 9. The formation of new eggs in the ovaries during adult life. 10. Animal reactions to the ovarian hormone theelin, especially the growth reaction in the genital tract, and mating instincts produced by substitution of theelin for the endocrine function of the ovaries. 11. The effects of theelin on the "sexual skin," vagina and cervix, in the monkey. 12. Reactions of the genital organs of immature monkeys to theelin. 13. Effects of ovarian hormones on the wall of the uterus where the embryo implants; the experimental production of menstruation. 14. Effects on the mammary glands, including the skin of the nipples. 15. A few major steps in the purification and crystallization of theelin, showing samples of the extract at different stages. 16. The hormone of the corpus luteum and experiments showing its effect on the uterus and the first successful replacement therapy which permitted a mother without ovaries to bear young successfully through a gestation period of normal length. 17 and 18. The development of the mammary gland and its dependence on hormone stimulation for growth and function. 19. Biochemistry and animal reactions of corpus luteum hormones in rabbits, guinea-pigs and monkeys.

THOMAS HENRY SIMPSON MEMORIAL INSTITUTE FOR MEDICAL RESEARCH (University of Michigan, Cyrus C. Sturgis, Raphael Isaacs).—The exhibit will consist of a series of charts and models arranged along the walls of the exhibit booth to illustrate (1) what blood is; (2) its amount and components; (3) how and where it is made; (4) its various functions; (5) its variations in simple disease processes; (6) its relation to food; (7) instruments used for the study of blood; (8) blood transfusion. The exhibits are so arranged that a person wishing to gain an elementary knowledge of blood can start at chart 1 and advance through the others. The technic of blood transfusion as well as some other details will be shown by wax or other models representing an actual hospital scene. It is possible that a rotating device to illustrate transportation of oxygen by red corpuscles from the lungs to the organs may be shown.

U. S. PUBLIC HEALTH SERVICE, Federal Building (J. G. Townsend).—This extensive exhibit, occupying more than 2,500 square feet, shows the progress made in public health and sanitation since the establishment of the service and is presented in divisions as follows: Marine Hospital Division, Division of Scientific Research, Division of Interstate Quarantine, Foreign and Insular Quarantine, Mental Hygiene, Venereal Diseases, Charts and Graphs, Miscellaneous. There is exhibited an old style medical kit and a modern ship's medicine chest. There are models of a modern milk plant and of an approved schoolroom with all modern facilities. The recent work on pellagra, tularemia, undulant fever, typhus fever, spotted fever and psittacosis (parrot's disease) are clearly presented. The brilliant control of smallpox by vaccination since the time of Jenner, 1796, typhoid by inoculation and diphtheria by toxin-antitoxin are shown by charts, models and posters. There will be models of the septic tank and water purification plant, and of evolution of water containers on common carriers made by Dr. Crowder of the Pullman Company. By wax models, charts and photographs, the recent work on trachoma is presented. There are models of a disinfecting plant, a rat-proof wharf, a rat-proof warehouse, a rat-proof vessel, and a large map of the Western Hemisphere showing airplane routes to the United States, time of flight, and infected yellow fever areas. There is a large illuminated world map showing the incidence and death rate of smallpox and the practical obliteration of this disease by vaccination.

UNIVERSITY OF CHICAGO (E. L. Compere).—This exhibit has been prepared for the purpose of educating the lay public in the need for providing adequate care for the more than 300,000 crippled children in the United States. It is further hoped that the exhibit may emphasize, both to the lay public and to the physician, the fact that many of these crippled children can be rehabilitated to a degree of functional usefulness and self support who in the past may have been considered hopeless. The scientific part of the exhibit emphasizes the development, structure, function and derangement of the human spine, with particular emphasis on the disks found between the vertebrae. With the aid of models, photographs, roentgenograms and photomicrographs, the scientific evidence is presented. In a diorama are shown the surgical procedures that were practiced by the southwest Indians of the United States before the time of Columbus. In another diorama, a modern orthopedic ward of six beds is presented. By motion pictures, the results of treatment of acute anterior poliomyelitis are projected for the observer. The treatment of other diseases of the bones and joints is illustrated with transparent and colored photographs on transilluminated panels.

UNIVERSITY OF GEORGIA SCHOOL OF MEDICINE (George L. Kelly, M.D., and Eugenia Long Harper).—Memorial exhibit to Crawford Long, the discoverer of ether anesthesia, in Jefferson, Ga., March 30, 1842. Statue, office desk used by Crawford Long, photographs and photostatic copies of letters and evidence of Crawford Long's priority in the discovery of ether anesthesia.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, COLLEGE OF DENTISTRY, DEPARTMENT OF ANIMAL HUSBANDRY, and the ILLINOIS DEPARTMENT OF PUBLIC HEALTH (D. J. Davis and Tom Jones).—This exhibit constitutes 2,200 square feet and is composed of dioramas, models, transparencies, charts, drawings and specimens showing the relation of focal infections to systemic diseases, hay fever, tuberculosis, pneumonia, hemophilia and rabies. The Illinois Department of Public Health has dioramas on milk production and distribution, contrasting insanitary methods with modern sanitary ones. Health conditions of 100 years ago are shown in contrast with those of today, bringing out the effective means employed of purifying the water supply and of the disposal of waste material. There are included exhibits on the heart, epidemic encephalitis and amebic dysentery.

UNIVERSITY OF WISCONSIN (C. R. Bardeen).—Beaumont exhibit of books, photostats, photographs and charts of the epoch-making work on gastric digestion published in 1833. This is the centennial of the publication of the work of the first American physiologist, conducted on the French voyageur Alexis St. Martin, who had a permanent gastric fistula, the result of an accidental gunshot wound. This investigation was conducted in the territory of Wisconsin and Michigan.

561 North Fifteenth Street.

Medicolegal

Practice of Medicine by Layman Through Licensed Physician Unlawful; Urinalyses and Blood Pressure Tests as the Practice of Medicine.—Granger, a layman, conducted a so-called health audit service. For a fee he undertook to make for individual subscribers urinalyses and blood pressure tests and to report the results. He employed a licensed physician, Dr. Grave, to make the urinalyses and to report to him, with such recommendations as Dr. Grave thought proper as to the subscribers' health habits. Granger passed on to the subscriber the information he received from Dr. Grave. Apparently, Granger himself made the blood pressure tests. Under orders of the Minnesota board of medical examiners, Dr. Grave refused to continue the making of urinalyses under his contract, and Granger sought by injunction to restrain such interference by the members of the board. They entered a demurrer, contending that Granger's activities constituted the practice of medicine, that his contract with Dr. Grave was therefore illegal, and that consequently it was not entitled to protection by a court of equity. The trial court sustained the demurrer and Granger appealed to the Supreme Court of Minnesota.

Granger denied that his activities constituted the practice of medicine, laying emphasis on the fact that he never recommended the taking of medicine or any treatment, but only suggested to subscribers whose reports were repeatedly abnormal that they consult their physicians. But regardless of whether or not medicine was prescribed, the court was of the opinion that Granger was practicing medicine. Diet, exercise and mode of living were prescribed, and they are agencies for the relief of disease. The science of diagnosing human diseases and ailments has come to be a distinct branch of the medical profession. The diagnostician limits his efforts to the discovery of the disease or ailment, leaving treatment to some other physician or surgeon. A physician who thus applies his learning and energies in the diagnosis of disease is engaged in the practice of medicine even though he prescribes no drug and administers no specific treatment. *State* v. *Rolph*, 140 Minn. 190, 167 N. W. 553, L. R. A. 1918D, 1096.

If Dr. Grave was practicing medicine in what he did and in determining for Granger whether the subscribers' urine was normal or abnormal, then, in the opinion of the court, Granger was practicing medicine when he passed on to the subscriber the result of the analyses and Dr. Grave's advice. Granger was as much practicing medicine in employing Dr. Grave to do this work for him as he would have been if he himself had attempted to make the urinalysis, as he in fact did make the blood pressure tests. To pass on to the subscriber advice as to whether or not the tests indicated a normal or abnormal condition, and whether or not the subscriber should consult his physician or be content with the advice which Granger himself might give in regard to diet, exercise and mode of living, was practicing medicine.

The Supreme Court pointed out that a corporation or a layman could not practice law by employing a licensed attorney, for the profit of the corporation or layman employing him, to act as attorney or counsel for others. *In re Disbarment of Otterness*, 181 Minn. 254, 232 N. W. 318, 73 A. L. R. 1319. The court was convinced that it was improper and contrary to statute and public policy for a corporation or layman to practice medicine in a similar way. Dr. Grave's obligation under his contract was to Granger, not to the subscribers to the health audit service. The law intends that the patient shall be the patient of a licensed physician, not the patient of a corporation or layman. The obligations and duties of a physician demand no less. There is no place for a middleman. In this rule the court could see nothing to prevent life insurance companies from furnishing free examinations to their policyholders, since insurance companies charge no fee and make the examinations in promoting the reduction of insurance hazards. The court could not see any objection to the employment by physicians of technicians and other experts, leaving the results of the work of the technician or expert to be interpreted by a physician as a help to diagnosis.

Since the contract between Granger and Dr. Grave was in furtherance of Granger's violation of law, it was illegal, against public policy and void, and no injunction could be issued to prevent interference with it.—*Granger v. Adson et al. (Minn.), 250 N. W. 722.*

Society Proceedings

COMING MEETINGS

American Medical Association, Cleveland, June 11-15. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, Cleveland, June 11-12. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study of Goiter, Cleveland, June 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association for the Study of Neoplastic Diseases, Baltimore June 21-23. Dr. Eugene R. Whitmore, 2139 Wyoming Avenue, N.W., Washington, D. C., Secretary.

American Association of Industrial Physicians and Surgeons, Cleveland, June 11-12. Dr. Volney S. Cheney, Armour and Company, Union Stock Yards, Chicago, Secretary.

American Association of Medical Milk Commissions, Cleveland, June 11-12. Dr. Harris Moak, 360 Park Place, Brooklyn, Secretary.

American Association on Mental Deficiency, New York, May 26-29. Dr. Grove B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Bronchoscopic Society, Cleveland, June 11. Dr. Louis H. Clerf, 110 South 10th Street, Philadelphia, Acting Secretary.

American Clinical and Climatological Association, Toronto, Canada, May 21-23. Dr. Francis M. Rackemann, 263 Beacon Street, Boston, Secretary.

American Dermatological Association, New York, June 7-9. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 21-23. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.

American Heart Association, Cleveland, June 12. Dr. Irl C. Riggin, 50 West 50th Street, New York, Executive Secretary.

American Laryngological Association, Cleveland, June 7-9. Dr. William V. Mullin, 9204 Euclid Avenue, Cleveland, Secretary.

American Neurological Association, Atlantic City, June 4-6. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Ophthalmological Society, Lucerne-in-Quebec, Canada, July 9-11. Dr. J. Milton Griscom, 2213 Walnut Street, Philadelphia, Secretary.

American Orthopedic Association, Rochester, Minn., June 6-9. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Physiotherapy Association, Cleveland, June 13-16. Mrs. Bess Searls, 1430 West 77th Place, Chicago, Secretary.

American Proctologic Society, Cleveland, June 11-12. Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa., Secretary.

American Psychiatric Association, New York, May 28-June 2. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Society of Clinical Pathologists, Cleveland, June 8-11. Dr. A. S. Giordano, 331 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Toronto, Canada, June 4-6. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Cleveland, June. Dr. Oscar B. Hunter, 1835 Eye Street, N.W., Washington, D. C., Secretary.

American Urological Association, Atlantic City, May 22-24. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Arizona State Medical Association, Prescott, June 7-9. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.

Association for the Study of Allergy, Cleveland, June 11-12. Dr. Warren T. Vaughan, 808 Professional Building, Richmond, Va., Secretary.

Association for the Study of Internal Secretions, Cleveland, June 11-12. Dr. F. M. Pottenger, Pottenger Sanatorium, Monrovia, Calif., Secretary.

Connecticut State Medical Society, Bridgeport, May 23-24. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

Maine Medical Association, Bangor, May 28-29. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Worcester, June 4-6. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, Baltimore, May 21-23. Miss Marjorie J. Darrach, 645 Mullett Street, Detroit, Secretary.

Medical Women's National Association, Cleveland, June 10-12. Dr. Elizabeth Kittredge, 3906 McKinley Street, Washington, D. C., Secretary.

Montana, Medical Association of, Helena, July 11-12. Dr. E. G. Balsam, Box 88, Billings, Secretary.

Nebraska State Medical Association, Lincoln, May 22-24. Dr. R. B. Adams, Center-McKinley Building, Lincoln, Secretary.

New Jersey, Medical Society of, Atlantic City, June 5-8. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

North Dakota State Medical Association, Fargo, May 28-29. Dr. Albert W. Skelsey, 20½ Broadway, Fargo, Secretary.

North Pacific Pediatric Society, Vancouver, B. C., June 18. Dr. R. H. Somers, 1305 Fourth Avenue, Seattle, Secretary.

Oklahoma State Medical Association, Tulsa, May 21-23. Dr. L. S. Willour, Ainsworth Building, McAlester, Secretary.

Pacific Northwest Medical Association, Salt Lake City, June 21-23. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 7. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.

Utah State Medical Association, Salt Lake City, June 21-23. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

187: 149-296 (Feb.) 1934

Bundle-Branch Block: Case Analysis, with Especial Reference to Incidence and Prognosis. J. T. King, Baltimore.—p. 149.
Pathologic Changes in Heart in Auricular Fibrillation. H. K. Mohler and B. L. Crawford, Philadelphia.—p. 171.
*Heart Disease in Pregnancy: Preliminary Report. A. E. Lamb, Brooklyn.—p. 177.
Anemia as Cause of Angina Pectoris in Presence of Healthy Coronary Arteries and Aorta: Report of Case. A. H. Elliot, Santa Barbara, Calif.—p. 185.
Chronic Hereditary Hemolytic Jaundice: Report of Eight Cases and Notes on Measurement of Size of Erythrocytes. W. F. Cheney and G. Cheney, San Francisco.—p. 191.
*Interrelation of Cutler, Linzenmeier and Westergren Sedimentation Tests. Esther M. Greisheimer, A. E. Treloar and Mary Ryan, Minneapolis.—p. 213.
Study of Steatorrhea, with Especial Reference to Its Occurrence in Pancreatic Disease and Sprue. J. H. Pratt, Boston.—p. 222.
*Tularemia Treated by a New Specific Antiserum. L. Foshay, Cincinnati.—p. 233.
Rôle of Infection in Gastric and Duodenal Ulcer. E. W. Saunders, H. B. Holsinger and Mary A. Cooper, New York.—p. 246.
Anaphylactic-Like Reaction Produced by Streptococcus of Gastric Ulcer. E. W. Saunders, H. B. Holsinger and Mary A. Cooper, New York. —p. 249.
Pneumonia in New-Born and Stillborn Infants. Margaret Warwick, Buffalo.—p. 253.
Observations on Production of Pain and Fatigue in Muscular Ischemia and Their Relationship in Angina Pectoris. L. B. Laplace and M. P. Crane, Philadelphia.—p. 264.

Heart Disease in Pregnancy.—The incidence of cardiac murmurs in pregnant women in Lamb's series was 6.1 per cent. Of these, 2.7 per cent had organic heart disease, while 3.4 per cent had only functional murmurs and no detectable lesion. None of these patients showed the slightest evidence of cardiac strain during pregnancy, and follow-up studies show that nearly all of these functional murmurs disappeared after pregnancy. Rheumatic heart disease causes about 90 per cent of the heart lesions in pregnant women. The most frequently observed lesion is mitral stenosis with or without insufficiency. A third of the cases of mitral stenosis decompensated, while no case of uncomplicated mitral insufficiency decompensated, demonstrating the importance of differentiating between these two lesions. The functional classification of pregnant cardiac patients has been considered and it was noted that five patients out of those with and without organic heart disease who were able and unable to carry on ordinary physical activity without discomfort decompensated, which is at variance with the work of Pardee, who asserts that these patients have an excellent prognosis. Other factors, in the author's opinion, must be considered in addition to the functional classification, such as the age of the patient, the family environment, the duration of the heart disease and the extent of valvular damage. Most of the patients who decompensated did so before the onset of labor, and there was no relationship demonstrated between the month of pregnancy and the onset of decompensation. The mortality was 7.5 per cent, which falls within the mortality range of from 5 to 10 per cent as reported by reliable observers. Two of these deaths were probably preventable. Consideration of the mortality of the patients having prenatal care and those who did not shows a death rate of 2.2 per cent in the former and 20 per cent in the latter. The limited follow up showed that 56 per cent were not worse following pregnancy, while 43 per cent were. The need for further follow-up study to determine what happens to the cardiac mother and her child after the lying-in period is obvious.

Sedimentation Tests.—Greisheimer and her associates studied the blood sedimentation in ninety-nine men and 102 women, selected without regard to age or health from university students and ambulatory patients to establish the interrelationships between the Linzenmeier, Cutler and Westergren sedimentation methods. The average sedimentation in one hour for normal subjects appears to be reasonably concordant for the three methods despite the wide differences in the width of the tube, anticoagulant concentration and length of the fluid column, although the differences between the means for the three methods are significant statistically. The average sedimentation at one hour for women is approximately double that for men. The concordance between the results by each pair of methods for the individual patients has been subjected to analysis by preparing the correlation tables. The regression lines, for predicting the most likely value to be expected by any one test when that by another is known, proved to be of three distinct types. There is a rectilinear relationship between the Cutler index and the Linzenmeier index. The regressions between the Westergren index and the Cutler or the Linzenmeier index appear to be somewhat like saturation curves. However, they had to be fitted by a systematic scheme of free-hand graduations for lack of a suitable type of mathematical equation. The relationships between the various indexes and Linzenmeier time values may be suitably portrayed by section of hyperbolas. The dispersals of individual cases about the lines of average relationship, although not studied in detail, are clearly greater than those ascribable to errors inherent in the technics. The conclusion is clear that sedimentation measures for human blood are, in part, specific for the technic employed. Standardization of a generally acceptable method for blood sedimentation would prove most advantageous for clinical work.

Tularemia Treated by a Specific Antiserum.—Foshay states that an initial trial has shown that the goat can be made to yield a potent antitularense serum, which is effective in treating tularemia in man. The intravenous administration of this serum produced a marked and prompt amelioration of symptoms in fourteen out of fifteen tularemia patients and caused a shortening of the duration of adenopathy, the period of disability and the total duration of disease. One patient, who was received in a dying condition with extensive involvement of the lungs, liver and spleen, was not improved. The antiserum has a specific desensitizing action. There is evidence to show that its beneficial effects in man are intimately associated with this property and perhaps dependent on it. The maximal amount of serum given to any one patient was 26 cc. Within twenty-four hours after the administration of the serum there is usually complete relief from headache and a marked diminution in intensity of general malaise, arthralgias and myalgias. The author states that the method of production of the serum and the results of its experimental use in laboratory animals will be reported elsewhere.

American Journal of Ophthalmology, St. Louis

17: 99-194 (Feb.) 1934

Tubercle-Like Nodules of Episclera and Eyelids, Bilateral. W. H. Wilmer, Baltimore.—p. 99.
Blood Culture Studies in Iritis. E. F. Traut, Chicago.—p. 106.
Clinical Significance of Retrobulbar and Optic Neuritis. W. I. Lillie, Rochester, Minn.—p. 110.
Fundamental Principles of Cylinder Retinoscopy. J. I. Pascal, New York.—p. 120.
*Tonometry in Pernicious Anemia: Study of Twenty-Five Cases. G. F. Suker, Chicago.—p. 125.
Two Cases of Buphthalmus in Siblings. C. Hymes, Minneapolis—p. 132.
Complications in Cataract Extraction: Cause, Prevention and Management. O. B. Nugent, Chicago.—p. 135.
Relationships Between Ophthalmology and Obstetrics. M. B. Bergmann, Brooklyn.—p. 141.

Tonometry in Pernicious Anemia.—Suker observed that intra-ocular tension is markedly lowered in nearly every case of primary anemia, but particularly in agranulocytosis and pernicious anemias. Apparently in aplastic anemia and leukemia the intra-ocular tension is also reduced. Only with the return of a nearly normal or definitely improved blood picture does the intra-ocular tension return to nearly normal or normal. The decreased intra-ocular tension in the anemias seemingly does not predispose the eye to any intra-ocular complications, though the anemia may be of a severe character or of long

duration. Prolonged decreased intra-ocular tension alone does not cause any marked functional complications. If any ocular lesion accompanies the anemia, the former assumes greater seriousness and proves rather obstinate. The decreased intra-ocular tension seems to bear a closer relationship to the hemoglobin and the erythrocyte count than to the color index and the leukocyte count. A marked drop in the hemoglobin and in the number of erythrocytes and leukocytes is accompanied by a drop in the intra-ocular tension. A rise in these hemal constituents is accompanied by a rise in tension. Not so infrequently does a reverse occur. A variation in the blood picture during the course of the anemia is likely to be accompanied by a variation in the intra-ocular tension. In the author's twenty-five cases there was no case of hyperpiesis associated with the anemia. No intra-ocular lesion was engendered during the course of the anemia. No marked fundus vessel alteration was noticed in any case. In all cases the fundus had a more or less waxy hue.

American Journal of Public Health, New York

24: 101-186 (Feb.) 1934

Sickness Among the "Depression Poor." G. St. J. Perrott and S. D. Collins, Washington, D. C.—p. 101.
Public Health Engineering Problems of Large Communities: The Growth of American Cities. H. W. Green, Cleveland.—p. 108.
Id.: Keeping Up with the Demand for Adequate Pure Water. H. E. Jordan, Indianapolis—p. 111.
Id.: Liquid Wastes: Their Treatment and Disposal. L. Pearse, Chicago.—p. 117.
Id.: Can Refuse Collection and Disposal Systems Be Improved? H. P. Eddy Jr., Boston.—p. 119.
Examining Dairy Products for Members of the Escherichia-Aerobacter Group. M. H. McCrady and J. Archambault, Montreal.—p. 122.
Epidemiology of Lobar Pneumonia. W. G. Smillie and F. S. Leeder, Boston.—p. 129.

American Journal of Surgery, New York

22: 219-398 (Feb.) 1934

Experiences with New Mode of Treating Peptic Ulcer. F. Cunha, San Francisco.—p. 219.
Total and Subtotal Thyroidectomies: Indications for Operation and Technic Developed from a Series of Nineteen Hundred Cases. J. C. Moore, Seattle.—p. 235.
Pelvic Roentgenography: Its Value as an Aid in Gynecologic Diagnosis. J. Huberman, Newark, N. J., and D. R. Mishell, Maplewood, N. J.—p. 243.
Acute Appendicitis: Controllable Mortality Factors. J. H. Garlock, New York.—p. 248.
Ureteral Transplantation to Rectosigmoid for Exstrophy of the Bladder, Complete Epispadias and Other Urethral Abnormalities with Total Urinary Incontinence: Study of Eighty-Five Operative Cases. W. Walters and W. F. Braasch, Rochester, Minn.—p. 255.
Solitary Cysts of Kidney: Review of Coexisting Pathology. B. E. Greenberg, M. L. Brodny, and S. A. Robins, Boston.—p. 271.
*New Pyelographic Technic. M. B. Wesson, San Francisco.—p. 284.
Changes in Technic of Cervicothoracic Ganglionectomy and Trunk Resection. A. W. Adson, Rochester, Minn.—p. 287.
Time-Shock Factors in General Anesthesia. W. N. Kemp, Vancouver, B. C.—p. 289.
Convulsions Under Deep Anesthesia. F. H. Bowman, Yonkers, N. Y. —p. 295.
Acute Back Injuries. W. W. Lasher, New York.—p. 297.
*Pyogenic Osteomyelitis of Sacro-Iliac Joint: Treatment by Bardenheuer-Picque Resection, Modified by Orr Method. J. Kulowski, Iowa City. —p. 305.
Physical Therapy in Postoperative Reconstructive Surgery. W. Bierman, New York.—p. 314.
Traumatic and Developmental Abnormalities of the Sesamoid Bones of the Great Toe. J. H. Powers, Cooperstown, N. Y.—p. 315.
*Acromioclavicular Dislocation: Anatomic Exposure of the Outer End of the Clavicle and the Coracoid Process. S. M. Roberts, Boston. —p. 322.
Rustless Steel Wire in the Direct Fixation of Fractures. E. B. Potter and F. P. Husted, Ann Arbor, Mich.—p. 325.
Persistent and Recurrent Postoperative Exophthalmos. M. Nordland and L. M. Larson, Minneapolis.—p. 330.
Hypothyroidism: Its Relation to Convalescence Rate and End-Result Following Surgery. H. J. Vanden Berg, Grand Rapids, Mich. —p. 335.
Deoxygenation and Pus Infection. C. Van Zwalenburg, Riverside, Calif.—p. 339.
Postpartum and Puerperal Care. K. M. Beierlein, Fort Wayne, Ind. —p. 346.
New Suture in Perineoplasty. G. A. Coors, Memphis, Tenn.—p. 352.
Problem of Functional Uterine Bleeding. J. C. Burch, Nashville, Tenn. —p. 355.
The Occurrence and Possible Significance of Adenoma of the Gallbladder. W. L. A. Wellbrock, Rochester, Minn.—p. 358.
Menstruation After Abdominal Operations: Its Early Appearance as a Favorable Prognostic Sign. D. Stetten, New York.—p. 361.
Effect of Radio Knife on Wound Healing. A. E. Spelman, Halstead, Kan.—p. 364.
Injection Treatment of Hemorrhoids. A. W. M. Marino, Brooklyn. —p. 366.
Bacteriologic Appraisal of Thirty-Four Commonly Used Antiseptics. A. W. Allen, J. J. Moorhead and M. Patricia Edgerly, New York. —p. 371.
A New Curved Needle. H. Charache, Brooklyn.—p. 378.
Instrument for Intestinal Anastomosis. H. D. Furniss, New York. —p. 379.

New Pyelographic Technic.—Wesson has the patient enter the hospital the night before examination. Water is forced during his waking hours and he must have at least one liter before going to sleep and another in the morning before cystoscopy. Barbital, 0.3 Gm., is given on retiring and again at 7 a. m. At 7:30 the patient is catheterized and a sterile specimen sent to the laboratory for culture, and through the catheter an ounce of a local anesthetic (4 per cent procaine hydrochloride, 1:1,000 nupercaine or 2 per cent metycaine) is injected. At 8 o'clock the patient is given one-fourth grain (0.016 Gm.) of morphine, hypodermically. Cystoscopy is then done with little disturbance to the dozing patient. Specimens are collected for microscopic examination and cultures and then phenolsulphonphthalein is injected intravenously, the appearance time noted and collections made over two fifteen-minute periods. An ampule of neo-iopax is injected intravenously and a flat plate measuring 14 by 17 inches is made immediately. The table is then placed in the Trendelenburg position and the catheters are plugged and five minutes later a second picture (stereoscopic) is made and the plate developed. If there is a satisfactory filling, the other stereoscopic picture is taken. When the pelvic outline is not sharp, 13.5 per cent sodium iodide is injected through the catheters by means of two 25 cc. burets attached to a ring stand so that there cannot be more than 18 inches of pressure. The fourth picture is a vertical one, with the catheters removed at the instant the picture is taken. The patient is then sent to his room, placed in a hot bath for fifteen or twenty minutes to relieve or prevent kidney colic, and usually goes home in the afternoon. In both the intravenous injection with the catheters plugged and the combination of intravenous and retrograde pyelograms, the author has obtained well marked kidney outlines and pelvic filling on each side.

Bardenheuer-Picque Resection in Osteomyelitis of Sacro-Iliac Joint.—Kulowski reports four cases of osteomyelitis that were treated by the Bardenheuer-Picque technic as it was developed in his clinic. No other instances of pyogenic osteomyelitis of the sacro-iliac joints so treated have been mentioned in the literature. The procedure lends itself admirably to the principles systematized by Orr in the treatment of osteomyelitis: adequate drainage of the bony focus, adequate rest and protection of the parts until healing has taken place, and the prevention of secondary infection by the elimination of frequent meddlesome dressings, which such enforced plaster cast immobilization minimizes. The latter will bear special emphasis. The prevention of secondary infection is an axiom in surgical tuberculosis. Picque was adamant in its observation. It is no less important in the treatment of osteomyelitis.

Acromioclavicular Dislocation.—Roberts describes an approach to the outer end of the clavicle and the coracoid process that gives full exposure to all the essential regions and respects anatomic structures, thus minimizing bleeding and facilitating wound closure. The incision is a modification of the upper angle of the approach of Henry to the humerus and shoulder joint. 1. A curved skin incision is made starting at the acromioclavicular joint and running mesially along the outer curve of the clavicle and then turning down to pass just inside the tip of the coracoid process. The downward arm of the incision follows the sulcus between the deltoid and the pectoralis major. The total incision describes a little less than a semicircle. 2. The skin flap is retracted back, exposing the deltoid muscle. The acromioclavicular joint can then be exposed by a short incision through the upper part of its capsule. The deltoid is separated from the clavicle by detaching a small strip of bone containing the muscle insertion or by dividing its semitendinous insertion near the clavicle, leaving enough tissue attached to the bone to which to resuture the muscle. 3. The

inner border of the deltoid is separated from the fatty tissue that lies between it and the pectoralis and then the muscle is retracted outward and downward, exposing the coracoid process. The blood vessels entering the muscle from beneath must be cut and sutured, but this is the only point at which any bleeding is encountered. The acromioclavicular joint, the outer portion of the clavicle and the coracoid process are thus made accessible for any repair indicated. After repair of the injured ligaments is completed, the deltoid is reattached to the clavicle by passing two or three sutures through the muscle and round the clavicle. These should be placed before the ruptured ligaments are repaired and while the end of the clavicle is still loose and may be lifted up to allow the suture needle to pass close to the under surface of the bone without endangering any blood vessels. When these sutures are tightened, the slip of bone containing the deltoid attachment is lashed back into place, where it unites firmly.

American Review of Tuberculosis, New York

29: 123-248 (Feb.) 1934

*Tuberculosis Among Children of Tuberculous Parents: Statistical Study Following One Hundred and Thirty-Six Families into Adult Life. Helen W. Evarts, Rosalind G. Potter and Emily G. Dunn, Cambridge, Mass.—p. 123.
Further Study of Tuberculosis in Public School Children. H. W. Hetherington, F. M. McPhedran, H. R. M. Landis and E. L. Opie, Philadelphia.—p. 142.
Tuberculosis Clinic and Contact Study. Dorothy E. Wiesner and S. Margaret Smith, Philadelphia.—p. 170.
Tuberculosis Survey Among Two Thousand Food Handlers in New York City. D. C. Martin, H. T. Pessar and J. A. Goldberg, New York.—p. 182.
Value of Negative Intracutaneous Tuberculin (Mantoux) Test in Adults. M. R. Lichtenstein, Chicago.—p. 190.
Corrected Sedimentation Rate (C. S. R.) in Pulmonary Tuberculosis: Analysis of Approximately Two Hundred and Fifty Cases. S. Friedman, Middleton, Mass.—p. 198.
*Simplified Technic for Blood Sedimentation Indexes. L. D. Van Antwerp.—p. 214.
Linzenmeier Blood Sedimentation Time in Tuberculous Children. W. A. Reilly, San Francisco.—p. 220.
Early Diagnosis of Pott's Disease. R. I. Harris, Toronto.—p. 223.
Results in Seventy Consecutive Cases of Tuberculous Empyema. J. C. Jones and J. Alexander, Ann Arbor, Mich.—p. 230.
Tubercle Bacilli and Monilia. S. J. Maher, New Haven, Conn.—p. 239.

Tuberculosis Among Children of Tuberculous Parents.—The 592 children of parents with open pulmonary tuberculosis in 128 white and eight Negro families in the industrial population of Cambridge, Mass., have been followed by Evarts and her associates into adult life and a study has been made through questionnaires checked by official records of the tuberculosis rate among them. Attention is given chiefly to the 554 children who were born before or while the parent's case was known to be active and were therefore thoroughly exposed to the disease. Tuberculosis mortality, from 15 to 39 years, was at least between two and three times as high among offspring of white tuberculous parents as in the general white industrial population. The maximal number of cases among men occurred ten years earlier than in the general industrial population, while for women this maximum is approximately at the same age in the two groups. The age group from 5 to 14 years was as free from tuberculosis in one group as in the other. Children in families of English and American stock were found to be slightly less subject to tuberculosis than those of Irish or Nova Scotian stock. Bad homes and double parental exposure seemed to be important in causing tuberculosis among these children. Removal of the ill parent from the home, carelessness in sputum disposal and whether exposure was to father or mother seemed to be of no importance. Many of the children who developed tuberculosis in adult life were first exposed in late childhood. Often many years elapsed between the time of known exposure and the development of disease. About two thirds of the families of white tuberculous parentage have grown up without, so far, any known case of tuberculosis among the children.

Simplified Technic for Blood Sedimentation Indexes.—The modification of Van Antwerp is as follows: Of a sterile 3 per cent solution of sodium citrate, 0.2 cc. is drawn from a serum bottle and the syringe is filled to the 2 cc. mark with blood removed from a vein. A bubble of air is then drawn through the needle into the syringe and the blood and citrate are mixed. The bubble is expelled, the needle is removed and replaced by a cap and the capped syringe is placed in a test tube rack for observation. The caps were made by breaking the needle from a discarded hypodermic needle and filling the perforation with paraffin. A 24 gage, 1 inch needle seems best suited for use in the test. Readings are limited to a single one taken at the end of one hour. The advantages of this simplified technic are the following: The elimination of one or more steps in the determination of the index materially reduces the time necessary for the procedure. The small amount of blood necessary (1.8 cc.) allows the use of a small hypodermic needle, which causes a minimum of discomfort to the patient and facilitates entrance to the small veins of children. A minimum of equipment is necessary and, once the syringe (which can be put to other uses in the private office) is acquired, the apparatus can be found in any physician's office, with the exception of the sterile citrate solution. The sterilization necessarily preparatory to the test is no more than is required for ordinary venipuncture. The index is determined by a single reading at the end of an hour and the apparatus requires no attention during this time.

Annals of Internal Medicine, Lancaster, Pa.

7: 939-1058 (Feb.) 1934

Rational Treatment of Anemic Patient. W. P. Murphy, Boston.—p. 939.
*Use of Glycine in Treatment of Myasthenia Gravis. E. O. G. Schmitt, San Jose, Calif.—p. 948.
Pernicious Type of Nervous Dyspepsia. E. C. Klein Jr., Newark, N. J.—p. 960.
Hepatic Complications in Treatment of Syphilis; the Rose Bengal Test as a Means of Detecting Disturbances of Liver Function and Its Use as a Guide in the Therapy of Syphilis. G. R. Biskind, N. N. Epstein and W. J. Kerr, San Francisco.—p. 966.
Treatment of Circulatory Failure. L. M. Warfield, Milwaukee.—p. 981.
Sporotrichosis: Report of Case Originating in New York. G. M. Lewis and J. H. Cudmore, New York.—p. 991.
Relationship of Sex to Disease. E. V. Allen, Rochester, Minn.—p. 1000.
Hypoglycemia and Hyperinsulinism. M. K. Tedstrom, Santa Ana, Calif.—p. 1013.
*Pneumococcic Meningitis: Recovery with Felton's Serum. W. S. Reveno and N. McLaughlin, Detroit.—p. 1026.

Use of Glycine in Treatment of Myasthenia Gravis.—Schmitt presents two cases of myasthenia gravis which showed definite clinical improvement on a combination treatment of ephedrine sulphate and glycine. The administration of glycine was accompanied by an increase in the elimination of creatinine and preformed creatinine nitrogen. The maximum output of creatinine nitrogen occurred on the twelfth day in one case and on the twenty-second day in the other one. The average excretion during the test period was 0.628 and 0.74 Gm., respectively. There was a definite drop in the excretion of the urinary creatine nitrogen from a value in one case of 0.312 Gm. (before the test) to a daily average excretion of 0.066 Gm. for the test period of thirteen days. In the other case this decrease was from 0.123 Gm. before the test period to a daily average excretion of 0.045 Gm. a day (period of twenty-three days). The ratio of the creatine nitrogen to preformed creatinine nitrogen in both cases fell under glycine administration from a ratio of 1.07:1 to an average ratio of 0.106:1, and from one of 0.2:1 to one of 0.06:1, respectively. A dosage of 15 Gm. twice daily of glycine is an effective and probably the optimal dosage. Ephedrine sulphate seems to augment the efficacy of the glycine. In the author's experience a dosage of three-eighths grain (0.024 Gm.) twice daily given about twenty minutes after the dose of glycine is the optimal dosage. This dosage seems superior to a small one of three-sixteenths grain (0.012 Gm.).

Pneumococcic Meningitis: Recovery with Felton's Serum.—Reveno and McLaughlin successfully treated a patient having pneumococcic meningitis (probable portal of entry the paranasal sinuses) with the infecting organism pneumococcus type I and II, by intravenous, intraspinal and intracisternal instillations of 120,000 units of Felton's antipneumococcus serum. Recovery set in after seven days of treatment and was evidenced not only by clinical improvement but by a reappearance of sugar in the cerebrospinal fluid, a lowering of its cell count and a drop in the proportion of nonfilament cells in the

blood smear. The nonfilament decrease was relied on as a gage of the activity of the infection. As long as this figure remained between 8 and 16 it was felt that the infectious process was under adequate control. As a residue of the disease, the patient had a right facial and a right abducens paralysis. The former developed on the fourth day and the latter on the day after admission to the hospital. The facial involvement cleared rapidly but the sixth nerve paralysis took fully two months for recovery.

Archives of Dermatology and Syphilology, Chicago

29: 173-332 (Feb.) 1934

*Treatment of Postarsphenamine Dermatitis. L. W. Shaffer, Detroit.—p. 173.
Etiology of Granuloma Annulare, with Especial Reference to the Tuberculous Theory. J. C. Michael, Houston, Texas.—p. 189.
Phytopharmacologic Test in Dermatology: Further Studies and Some Critical Estimations. I. R. Pels and D. I. Macht, Baltimore.—p. 206.
Multiple Benign Tumor-Like New Growths of the Schweninger-Buzzi Type: Report of Case. N. Tobias, St. Louis.—p. 219.
Excessive Solar and Phototherapeutic Irradiation: Causative Factor in Certain Diseases of the Skin. P. E. Bechet, New York.—p. 221.
Blood Lipids in Xanthoma. J. C. Michael and H. O. Nicholas, Houston, Texas.—p. 228.
"Consecutive" Depigmentation. H. D. Niles, New York.—p. 240.
Tuberculodermas of the Face. H. E. Michelson and L. H. Winer, Minneapolis.—p. 251.
*Epithelioma of the Ear: Consideration of Difficulties in Its Treatment with Radiation. C. F. Lehmann, San Antonio, Texas.—p. 270.
Dermatitis Vegetans: Report of an Extensive Case. H. J. F. Wallhauser, A. Wallhauser collaborator, Newark, N. J.—p. 282.
Actinomycosis Without Granules. J. A. Gammel, Cleveland.—p. 287.
Iodobismitol: Clinical Excretion of Bismuth. P. J. Hanzlik, H. G. Mehrtens and J. B. Spaulding, San Francisco.—p. 298.

Treatment of Postarsphenamine Dermatitis.—Shaffer points out that the staff of the City Hospital in Detroit has employed dextrose occasionally in the treatment of postarsphenamine dermatitis for the last five years. It is difficult to evaluate the results, because the number of patients treated was not large and because cases of arsenical dermatitis vary greatly in the severity of manifestations and in the length of hospitalization. Results from the use of dextrose were encouraging and at times almost miraculous, so that such treatment has been continued. The use of dextrose in dilute solutions (from 2 to 10 per cent) as a diluent for arsphenamine has been recommended by several investigators to prevent arsphenamine reaction, as well as its use by mouth preceding the injection. Arsenic combines with dextrose to form glucosides which are less toxic, which have a tendency to remain in the blood stream over a longer period and which are excreted more rapidly. The author proposes to treat any new patient (nondiabetic) having accessible veins with 1 Gm. of sodium thiosulphate and 50 cc. of a 50 per cent solution of dextrose injected intravenously daily for from three to five days. The administration of the dextrose should be followed in one-half hour by 5 units of insulin. Patients in whom venipuncture is difficult or impossible should be treated with liver extract by intramuscular injection or with calcium gluconate according to the saturation technic of Karrenberg. The usual supportive and local measures of treatment were employed.

Epithelioma of the Ear.—Lehmann emphasizes the fact that radiation in the treatment of epithelioma of the cartilage of the ear cannot be standardized to fit every case. A small basal cell epithelioma on the skin, not attached to the cartilage, can be satisfactorily treated with beta rays shielded close round the epithelioma. If infection complicates the epithelioma, the success is rendered more uncertain; nevertheless it would be best to use gamma radiation (whether the lesion is of basal cell type or not). If the cartilage is already invaded, irradiation is futile. If the epithelioma is not a basal cell but a prickle cell type, it will require a heavy dose of radiation. Beta rays should not be selected for it, because of the danger of irreparably damaging the perichondrium, and therefore gamma rays should be used. The effect of previous treatment has to be taken into consideration. For instance, in a recurrence of an epithelioma that has been treated before with soft radiation (roentgen rays or beta rays of radium), one would consider how much the perichondrium is damaged. If there is no marked atrophy of the skin, one could well apply further radiation with gamma rays. If there is evidence that the perichondrium is broken, the efficacy of further radium treatment is doubtful.

Archives of Surgery, Chicago

28: 223-424 (Feb.) 1934

*Hyperinsulinemia Secondary to an Adenoma of the Pancreas: Report of a Case with Operative Cure. L. I. Ross and J. M. Tomasch, Cleveland.—p. 223.
Pathogenesis of Acute Pancreatitis (Acute Pancreatic Necrosis). L. R. Dragstedt, H. E. Haymond and J. C. Ellis, Chicago.—p. 232.
Experimental Obstruction of Jejunum: Effect of Administration of Water on Length of Life and Changes in Chemical Composition of Blood. H. E. Carlson and T. G. Orr, Kansas City, Kan.—p. 292.
The Part Played by Ureteral Inflammation in Dilatation of the Ureter: A Postmortem Study. D. E. Scott, Greenwich, Conn.—p. 296.
*Chromatophore (Myo-Epithelial) Tumors of the Mammary Gland. A. E. Hertzler, Halstead, Kan.—p. 307.
New Method of Reconstruction of the Lip. G. W. Pierce and G. B. O'Connor, San Francisco.—p. 317.
Chyle Cysts of the Mesentery. A. N. Collins and G. L. Berdez, Duluth, Minn.—p. 335.
Experimental Transplantation of the Pancreas into the Stomach. A. M. Tripodi and C. F. Sherwin, St. Louis.—p. 345.
*Cranial Osteomas and Hyperostoses Produced by Meningeal Fibroblastomas: Clinical-Pathologic Study. F. Echlin, New York.—p. 357.
Effect of Morphine on Obstructed Intestine. A. Ochsner, I. M. Gage and R. A. Cutting, New Orleans.—p. 406.
Fifty-Second Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts and J. S. Barr, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York; R. I. Stirling, Edinburgh, Scotland, and P. D. Wilson, Boston.—p. 417.

Hyperinsulinemia Secondary to Adenoma of Pancreas.—Ross and Tomasch present the history and course of a case of hyperinsulinemia with hypoglycemia secondary to a tumor involving the islands of Langerhans. The case differs from the cases reported previously in that the onset was apparently abrupt with complete loss of consciousness and evidence of external injury that caused the symptoms to be attributed to cerebral edema or concussion. During each of his seizures of hypoglycemia, the patient presented the semi-Babinski or extensor response described by Hart and Bond as a diagnostic aid in differentiating between insulin shock and diabetic coma. The complete absence of hypoglycemic seizures together with the clinical and laboratory evidence of the establishment of a normal carbohydrate metabolism immediately after the excision of the small pancreatic nodule is, the authors believe, adequate proof that this man's symptoms were due to the excessive production of insulin by the tissue of the tumor. The data presented, together with the clinical and experimental evidence cited in the cases reported previously, suggest again that tumors arising from glandular tissue may in some instances retain the function of the organ or tissue from which they arose. At the present time, exploration with removal of the adenoma, if demonstrable, offers the best chance of clinical cure.

Chromatophore Tumors of Mammary Gland.—Hertzler has observed that the malignant tumors of the mammary gland which possess a pseudocapsule, in whole or in part, always terminate fatally within a year or two, no matter how soon after the discovery of the tumor operation is performed, or what the extent of the operation is, or whether or not there are palpable metastases. These tumors occur in women at the menopause or beyond that period. There is a group of tumors which begin within the acini and in which the cells are loosely joined and diffusely scattered. Some of these appear as though they might have arisen from the subepithelial cells, but instead of growing away from the lumen of the acini they grow into it. At any rate, many of these tumors are globular, though they do not develop a pseudocapsule, and their course is usually malignant. Intracanalicular fibro-adenomas may give rise to malignant tumors which spring from the subepithelial layer. They run a course parallel with that of the chromatophore tumors in the skin.

Cranial Osteomas Produced by Meningeal Fibroblastomas.—Echlin attempts to explain the nature of osteomas of the external surface of the cranium. The material on which the study is based was collected from 2,000 cases of tumors of the bone and 1,000 cases listed under tumors of the head and skull, which included 350 cases of tumor of the brain. All the osteomas of the external surface of the cranium or hyperostoses caused by meningeal fibroblastomas were verified by microscopic examination. Osteomas may be either spongy or eburnated, and they arise from preosseous tissue on the cranial surface, as a rule, early in life. They grow slowly and most frequently take origin from the frontal bones. They usually arise in the growing bone. The spongy type of osteoma

usually causes an absorption or spongy transformation of the outer table of the cranium and becomes continuous with the diploe. As a result of this process, the inner table of the skull in the region of the tumor may become slightly depressed and thickened. A layer of bone is sometimes laid down on the surface of the tumor. Microscopically, this bone is young in type and is being actively formed from preosseous tissue. This type of osteoma has often been described as arising from the diploe. The fundamental pattern of ossification for osteomas of the cranium, characterized by subperiosteal growth, with accompanying spongy transformation of underlying bone and the frequent deposit of a subperiosteal shell of new bone, is also typical for similar new growths arising in other membranous bones. Osteomas of the cranial surface rarely arise in adults. Osteomas of membranous bones are a distinct entity from exostoses (osteochondromas) in cartilaginous bones. Osteomas usually arise in youth and hyperostoses in the fourth decade of life. Compression of the brain, a common feature of hyperostoses, is rarely caused by osteomas unless some complicating factor is present. Hyperostoses are more frequently tender than osteomas and unlike osteomas are sometimes compressible. The roentgenographic differences between these two bony growths are distinctive. In hyperostosis, ossification adjacent to the tables of the skull occurs in parallel strips under the periosteum and endosteum when these tissues are minutely elevated by the meningeal tumor in its growth. When these tissues become more completely stripped from their attachments, new bony trabeculae are laid down at right angles to the cranium. In the region of a meningeal fibroblastoma a small amount of thickening of the skull may result purely from hypervascularization, but the production of a hyperostosis of any appreciable size is apparently always due to the infiltration of the skull by the cells of the meningeal tumor. Osteomas that cause severe pressure on the brain usually arise either about the paranasal sinuses or the orbit or from the inner surface of the skull and not in the periosteal region on the cranial surface.

Arkansas Medical Society Journal, Fort Smith

30: 187-202 (Feb.) 1934

End Results in Some Unusual Fractures. W. F. Smith, Little Rock.—p. 187.
Whither Are We Drifting? S. W. Douglas, Eudora.—p. 189.
Lymphogranuloma Inguinale: Preliminary Report of Two Cases from Arkansas. D. W. Goldstein and L. T. Byars, Fort Smith.—p. 192.

Canadian Medical Association Journal, Montreal

30: 119-236 (Feb.) 1934

Surgical Therapy in Gallbladder Disease. R. R. Graham, Toronto.—p. 119.
Discussion of Factors Concerned in Intra-Ocular Absorption. H. C. Connell, Kingston, Ont.—p. 124.
Dinitrophenol. I. M. Rabinowitch and A. F. Fowler, Montreal.—p. 128.
Remarks on Intestinal Parasites in Montreal, and the Relation of Entamoeba Histolytica to Colitis. Annie Porter, Johannesburg, Africa.—p. 134.
Entamoeba Histolytica and Colitis in Montreal. R. H. M. Hardisty, Montreal.—p. 136.
Practical Application and Interpretation of the Schick Test: Diphtheria Antitoxin Content of the Blood of the Schick-Negative Reactor. D. L. Klein, Montreal.—p. 138.
Clinical Review of Two Hundred and Forty-One Cases of Obstruction of the Small Bowel. E. W. Workman and G. G. Miller, Montreal.—p. 141.
Clinical Aspects of Histology and Pathology of the Pancreas. G. K. Wharton, London, Ont.—p. 148.
Genito-Urinary Tuberculosis. D. W. MacKenzie, Montreal.—p. 153.
Choline as Related to Labor. F. Walker and D. N. Henderson, Toronto.—p. 158.
Relief of Pain in Labor with Nembutal. F. G. McGuinness, Winnipeg, Manit.—p. 162.
Some Aspects of Psoriasis. J. F. Burgess, Montreal.—p. 165.
The Cancer Problem and Publicity. W. H. McGuffin, Calgary, Alta.—p. 168.
Diagnosis of Cancer of Stomach. F. N. G. Starr, Toronto.—p. 171.
The X-Ray Treatment of Carcinoma of the Breast. L. J. Carter, Brandon, Manit.—p. 173.
Silicosis. J. G. Cunningham, Toronto.—p. 176.

Colorado Medicine, Denver

31: 41-80 (Feb.) 1934

Anatomic and Functional Damage to Adrenal Glands in General Visceroptosis, Especially in Renoptosis. O. S. Fowler, Denver.—p. 45.
Therapeutic Use of Urinary Proteose. R. W. Whitehead, W. Darley and P. A. Dickman, Denver.—p. 56.
Clinical Application of Ketogenic Diet. R. K. Dixon, Denver.—p. 61.

Johns Hopkins Hospital Bulletin, Baltimore

54: 79-144 (Feb.) 1934

Control of Carbohydrate Metabolism. J. J. R. Macleod, Aberdeen, Scotland.—p. 79.

Journal of Experimental Medicine, New York

59: 115-250 (Feb. 1) 1934

Acute Ascending Myelitis Following a Monkey Bite, with Isolation of a Virus Capable of Reproducing the Disease. A. B. Sabin and A. M. Wright, New York.—p. 115.
Experiments on Conversion of Typhus Strains. H. Mooser, G. Varela and H. Pülz, Popotla, Mexico.—p. 137.
Comparative Studies on Viruses of Vesicular Stomatitis and Equine Encephalomyelitis. P. K. Olitsky, H. R. Cox and J. T. Syverton, New York.—p. 159.
Pulmonary Arterial Pressure in Normal Albino Rats and Effect Thereon of Epinephrine. F. J. C. Smith and G. A. Bennett, Boston.—p. 173.
Pulmonary Hypertension in Rats Living Under Compressed Air Conditions. G. A. Bennett and F. J. C. Smith, Boston.—p. 181.
Energy Metabolism of Failing Heart. G. Decherd and M. B. Visscher, Chicago.—p. 193.
Swine Influenza: V. Studies on Contagion. R. E. Shope, Princeton, N. J.—p. 201.
*Specific Inhibition of Bacteriophage Action by Bacterial Extracts. P. Levine and A. W. Frisch, Madison, Wis.—p. 213.
Relation of Coat Color to Spontaneous Incidence of Mammary Tumors in Mice. C. C. Little, Bar Harbor, Maine.—p. 229.

Inhibition of Bacteriophage Action by Bacterial Extracts.—Levine and Frisch present experiments that demonstrate specific inhibition of bacteriophage by soluble products of bacteria. The inhibition proceeds more rapidly when the bacteriophage and bacterial extracts are incubated at 37 C. than at icebox temperature. The specificity of the reaction in the instances studied is probably connected with the presence of specific soluble carbohydrates. A reaction is available for the study of the chemistry of bacillary antigens in terms of bacteriophage.

Journal of Lab. and Clinical Medicine, St. Louis

19: 453-566 (Feb.) 1934

The Macropolycyte. W. E. Cooke, Wigan, England.—p. 453.
Sodium Ricinoleate: I. Attempt to Determine Its Action in the Alimentary Tract. J. T. Myers, E. L. MacQuiddy and C. P. Baker, Omaha.—p. 462.
Id.: II. Study of Intestinal Flora During Oral Administration. J. T. Myers, E. L. MacQuiddy and C. P. Baker, Omaha.—p. 468.
*Variations of Urea, Total Nonprotein Nitrogen and Chloride Concentration in Blood Following Glucose Ingestion. M. Bruger and I. A. Mirsky, New York, with technical assistance of S. Member.—p. 474.
Perennial Treatment of Hay Fever: Comparative Study. A. Colmes, Boston.—p. 481.
Reflex Eosinophilia. F. P. Chillingworth, J. C. Healy and F. E. Haskins, Boston.—p. 486.
*Further Studies on Cultivation of Endamoeba Histolytica and a Complement Fixation Test for Amebiasis. H. Tsuchiya, St. Louis.—p. 495.
Study of Salivary Amylase in Patients with Pernicious Anemia. C. P. Emerson Jr. and O. M. Helmer, Indianapolis.—p. 504.
Sickle Cell Anemia: Case Report. R. H. McClellan and R. M. Entwisle, Pittsburgh.—p. 507.
Mechanics of Spleen Visualization by Means of Metallic Compounds, in Particular Thorium. H. Rudisill Jr., Charleston, S. C., and E. Shute, Chicago.—p. 511.
Study of Punctate Stippling as Found in the Lead Poisoning of Wild Ducks. F. M. Johns, New Orleans.—p. 514.
New Syphilis Reaction, the M. K. R. II in Cerebrospinal Fluids. E. Meinicke, Hagen-Ambrock I. W., Germany.—p. 518.
New Colorimetric Method for Determination of Biliary Acids in Body Fluids: Note on Their Alleged Presence in Normal Blood. L. D. Scott, London, England.—p. 523.
Simple and Inexpensive Apparatus for Determination of Metabolic Rate in Guinea-Pigs. W. H. Cole and N. A. Womack, St. Louis.—p. 540.
*Comparison of Wassermann and Kahn Reactions on Spinal Fluid in Treated and Untreated Cases of Paresis. De L. Sackett and E. Esclius, Elgin, Ill.—p. 546.
Special Rack for Smith Fermentation Tubes and U Tubes. Pauline Epstein, New York.—p. 553.

Variations in Blood Following Dextrose Ingestion.—Bruger and Mirsky point out that the ingestion of 100 Gm. of dextrose by fasting subjects produced the following effects: 1. The urea nitrogen content of the blood may rise or (and) fall or remain unchanged. A gradual fall in the urea nitrogen (from 1 to 7 mg. per hundred cubic centimeters) was observed in twenty-two out of forty-five cases. A definite decrease (3 mg. or more per hundred cubic centimeters) occurred more often in subjects with diminished carbohydrate tolerance than

in those with normal tolerance. 2. The total nonprotein nitrogen of the blood may rise or (and) fall or show no marked change. In many cases the variations in the total nonprotein nitrogen were due mainly to changes in the urea nitrogen fraction. Irregular changes were noted in some instances in the sum total of the nonprotein nitrogenous substances in the blood other than urea. 3. There was a distinct reciprocal relationship between the whole blood and plasma chlorides and the dextrose concentration in the blood in many instances, though this was not observed in all the cases studied. There was no apparent relationship between the degree of diuretic response to dextrose and the variations in the constituents investigated. Diuresis following dextrose ingestion occurred more frequently and was more marked in subjects with normal carbohydrate tolerance than in those exhibiting a diminished tolerance for sugar. The hypothesis is suggested that these fluctuations represent an effort by the body to maintain a constant osmotic pressure of the blood. The compensatory response of urea, total nonprotein nitrogen and chloride to a rise of dextrose in the blood is not a uniform reciprocal relation. The varied increase or decrease of these substances suggests that the total osmotic pressure is adjusted according to the physiologic reserve prevailing in the body at a given moment.

Complement Fixation Test for Amebiasis.—Tsuchiya offers a new culture medium (S. C. medium) for Endamoeba histolytica, which consists of 10 Gm. of peptone, 3 Gm. of meat extract, and 5 Gm. of sodium chloride in 1 liter of distilled water adjusted to p_H 7 and autoclaved at 15 pounds pressure for thirty minutes. The p_H of the medium within the range of 6.8 and 7.4 also answers the purpose, though the optimum is found to be 7. When complement fixation tests were carried out with an antigen prepared from cultures of amebas grown in the foregoing medium, the following results were obtained: Of 153 persons examined, 135 known to be free of amebic infection were found to give a negative serologic test. Of the remaining eighteen, eight were known carriers of Endamoeba histolytica and gave positive serologic reactions. Six were diagnosed as having clinical amebic dysentery and exhibited positive serologic reactions except in one case, in which repeated trials failed to show any capacity to fix complement. There were four cases of ulcerative colitis that showed positive serologic tests, but no amebas were detected in the examinations of the stools. Thus, a negative serologic test appears to be quite significant and valuable for eliminating the possibility of amebiasis in a given person. A positive serologic test also seems to be quite specific in demonstrating the presence of Endamoeba histolytica.

Wassermann and Kahn Reactions on Spinal Fluid in Dementia Paralytica.—Sackett and Eselius observed that the Wassermann reaction (Craig) on spinal fluid gives a higher proportion of positive reactions in treated and untreated cases of dementia paralytica, than the standard Kahn or the modified Kahn employing the serum antigen titer. The agreement between the three reactions is relatively high in nondementia paralytica and untreated cases, but falls off rather sharply in treated cases. The modified Kahn reaction employing the serum antigen titer gave a higher proportion of positive reactions in treated and untreated cases of dementia paralytica than the standard Kahn test. One false positive reaction was observed among forty-eight nondementia paralytica patients with the modified Kahn reaction, indicating a possibility of error if this test is used exclusively. The authors' method for removing the excess ammonium sulphate from the precipitated globulin differs from the method of Kurtz and Larkum in that, after the globulin has been thrown down by centrifugating, the supernatant fluid is carefully pipetted off and the tube is placed in an inverted position on some filter paper and allowed to drain for half an hour. Then the inner sides of the tube are carefully dried by means of a cotton applicator, great care being taken not to disturb the precipitated globulin. The globulin is then ready to be redissolved and the regular Kahn technic continued, except that the antigen serum titer can be used. In their study they did not concentrate the globulin dilution but followed the routine Kahn procedure for spinal fluid. In removing the supernatant fluid they found that if great care was used it could be poured instead of pipetted off without affecting the end-result of the test.

Journal of Pharmacology & Exper. Therap., Baltimore

50: 131-240 (Feb.) 1934

Some Observations on Relationship Between Chemical Constitution and Physiologic Action: Comparative Effects of Benzyl-β-Phenylethyl Amines and Di-(β-Phenylethyl) Amines and Some of Their Derivatives. A. M. Hjort, Tuckahoe, N. Y.—p. 131.

Influence of Insulin-Free Pancreatic Extract on Gaseous Exchange of the White Rat. C. J. Carr, J. E. Schmidt and W. Harne, with J. C. Krantz Jr., Baltimore.—p. 151.

Action of Certain Nucleic Acid Derivatives on the Coronary Flow in the Dog. A. M. Wedd and A. N. Drury, Cambridge, England.—p. 157.

Actions of Pituitary Preparations (Posterior Lobe) on Intestines of the Dog. K. I. Melville and R. L. Stehle, Montreal.—p. 165.

Actions of Pituitary Preparations (Posterior Lobe) on Intestines of the Rabbit. K. I. Melville and R. L. Stehle, Montreal.—p. 174.

Further Experimental Observations on Combined Effects of Digitalis and Quinidine on the Heart. N. T. Kwit and H. Gold, New York.—p. 180.

*Experimental Study of Mapharsen (Meta-Amino Parahydroxy Phenyl Arsine Oxide) as an Antisyphilitic Agent. A. L. Tatum and G. A. Cooper, with assistance of H. M. Kelly, V. A. Benn and C. C. Pfeiffer, Madison, Wis.—p. 198.

Action of Drugs on Isolated Intestine of Certain Teleost Fish. F. Bernheim, Durham, N. C.—p. 216.

Comparative Effect of Various Diuretics in Dogs, with Especial Reference to Excretion of Urine, Chloride and Urea. M. N. Fulton, H. A. Van Auken, R. J. Parsons and L. F. Davenport, Boston.—p. 223.

Experimental Study of Mapharsen as an Antisyphilitic Agent.—Tatum and Cooper point out that mapharsen (meta-amino parahydroxy phenyl arsine oxide) is a pure chemical preparation, the purity of which can be determined. The arsphenamines, on the other hand, are chemical mixtures, and consequently the toxicity and therapeutic values may vary with each lot. Mapharsen becomes slowly less toxic on oxidation, whereas the arsphenamines become quickly much more toxic. Nitritoid reactions should be entirely absent with mapharsen. For therapeutic uses in experimental rabbit syphilis, mapharsen is required in quantities representing only one-fiftieth to one-thirtieth the amount of arsenical drug that is required with neoarsphenamine. The therapeutic index, i. e., the ratio of the maximal tolerated dose to the curative dose, is distinctly greater for mapharsen than for neoarsphenamine in experimental syphilis. The administration of mapharsen twice a week in amounts of one-fifth to one-half the maximal tolerated dose, for ten weeks, does not cause any evident intoxication in the animals. It does not seem likely that the repeated use of this compound in the clinic should cause any cumulative effects. From the practical standpoint, mapharsen can be safely ampuled with sufficient dry sodium carbonate to neutralize the acid and enough sodium chloride to make an isotonic solution when the drug mixture is dissolved in the specified quantity of sterile distilled water. The authors are convinced that mapharsen has such advantages over the arsphenamines as to justify its clinical investigation.

Kansas Medical Society Journal, Topeka

35: 41-80 (Feb.) 1934

Is Chronic Appendicitis a Myth? L. L. Woodfin, Osawatomie.—p. 41.

Analgesics. D. C. Peete, Kansas City, Mo.—p. 46.

Military Surgeon, Washington, D. C.

74: 57-112 (Feb.) 1934

Care of Injuries of Brain in War and Value of Early Costochondral Grafts in Skull Defects. A. M. Hanson.—p. 61.

Out of the Grand Canyon on a Litter. R. P. Williams.—p. 70.

Chemical Warfare Treatment Unit in Operation. F. A. Wells.—p. 76.

Nebraska State Medical Journal, Lincoln

19: 41-80 (Feb.) 1934

Diagnosis and Treatment of Renal Infection. J. C. Birdsall, Philadelphia.—p. 41.

Pneumonia: Etiology of Pneumonia. F. Conlin, Omaha.—p. 48.

Id.: Unrecognized Pneumonia. J. P. Tollman, Omaha.—p. 53.

Id.: Laboratory Aids in Diagnosis and Treatment of Pneumonia. A. S. Rubnitz, Omaha.—p. 54.

Id.: Serology of Pneumonia. W. B. Moody, Omaha.—p. 55.

Id.: Surgical Complications of Pneumonia. J. Weinberg, Omaha.—p. 58.

Progress of Surgery: Review of Literature of the Second Half of 1933. H. H. Davis, Omaha.—p. 60.

The Medical Profession. B. F. Bailey, Lincoln.—p. 63.

Enuresis. W. O. Colburn, Lincoln.—p. 67.

After Care of Infantile Paralysis. Mary Potts, Omaha.—p. 69.

New England Journal of Medicine, Boston

210: 287-344 (Feb. 8) 1934

Diagnosis, Treatment and Immediate Prognosis of Cerebral Trauma: Introductory Study of One Thousand Four Hundred and Ninety-Four Cases. D. Munro, Boston.—p. 287.

Amebiasis in Connecticut. J. H. Foster, Waterbury, Conn.—p. 294.

Papillary Carcinoma of the Renal Pelvis: Report of Case. H. A. Chamberlin and H. E. MacMahon, Boston.—p. 299.

Uterus Didelphys: Report of Case. R. H. Sweet, Boston.—p. 303.

Recurrent Trichobezoar: Report of Case. D. E. Bennett, Brooklyn.—p. 307.

Symptoms of Hidden Ocular Muscle Imbalance. F. W. Marlow, Syracuse, N. Y.—p. 309.

Progress in Neurology, 1932. A. Myerson and J. Loman, Boston.—p. 314.

210: 345-402 (Feb. 15) 1934

Gastro-Intestinal Symptoms from Left Renal Tumor: Demonstration of Metastases Around Sympathetic Nerves Having Renal and Gastric Associations. C. S. Swan, Boston.—p. 345.

Fatal Case of Septicemia Due to Pneumobacillus of Friedlander, Following Transurethral Prostatotomy. M. L. Brodny, Boston.—p. 346.

Experiences with Prostatic Resection. J. D. Barney, Boston.—p. 349.

Transurethral Resection of Prostate. R. C. Graves, Boston.—p. 351.

Observations in Transurethral Prostatic Resections. E. J. O'Brien, Boston.—p. 354.

Prostatic Resection at the Lahey Clinic. J. B. Hicks, Boston.—p. 358.

Management of Gonorrhea: I. Laboratory in Diagnosis of Gonorrhea. The Neisserian Medical Society of Massachusetts.—p. 362.

Bronchopulmonary Suppuration. E. B. Emerson, Rutland, Mass.—p. 365.

Enterobius Vermicularis of the Appendix. R. H. Goodale, Worcester, Mass.—p. 372.

General Aspects of Chronic Arthritis. F. R. Ober, Boston.—p. 374.

210: 403-456 (Feb. 22) 1934

Operative Management of Cancer of the Rectum. R. B. Cattell and F. H. Lahey, Boston.—p. 403.

Sickle Cell Anemia: Report of Eight Cases, One with Necropsy. J. C. Corrigan and I. W. Schiller, Boston.—p. 410.

Incidence of Syphilis in the General Population and a Comparison of the Kahn and Wassermann Tests. J. J. Short and Margaret F. Kelley, New York.—p. 417.

Relative Value of Symptoms Versus the X-Ray and Esophagoscope in Early Diagnosis of Carcinoma of the Esophagus. E. S. Emery Jr., Boston.—p. 420.

*A New Method for the Prediction of the Sex of the Fetus. M. Davis, Boston.—p. 421.

Device for Fixation of Hands and Arms for Certain Operative Cases. B. D. Adams, Burlington, Vt.—p. 423.

Lest We Forget. J. A. Rockwell, Cambridge, Mass.—p. 424.

Prediction of Sex of Fetus.—Davis, in his attempt to determine the sex of the fetus, injected intradermally from 0.2 to 0.3 cc. of stock testicular extract. The reactions were labeled as negative (no reaction), one plus (a red area 12 mm. in diameter), two plus (red area from 12 to 20 mm. in diameter), and three plus (a red area more than 20 mm. in diameter). The readings were made in from four to ten minutes after the injection. The reactions disappeared, as a rule, within a few hours. The injections were slightly painful from the stretching of the skin, but the patients did not usually object to them. Practically none of the patients reported any residual soreness. A negative reaction indicated a female fetus; the two and three plus reactions showed male children. The records of the one plus reactions were almost equally divided between the males and the females. The 136 cases tested with the stock testicular extract gave poor results; therefore more of the extraneous protein was removed from the solution. With the new ampules, 534 more cases were tested with moderately good results. There was an accuracy of 82.3 per cent in the 294 male fetuses and 89.6 per cent in the 174 female fetuses. Of the one plus reactions, twenty-nine were male and thirty-seven were female fetuses.

New Jersey Medical Society Journal, Orange

31: 63-124 (Feb.) 1934

Gastro-Intestinal Camouflage of Organic Disease. J. Gerendasy, Elizabeth.—p. 69.

Coronary Thrombosis, with Especial Reference to Its Differentiation from Abdominal Surgical Conditions. R. V. Patterson, Philadelphia.—p. 75.

Opportunities for Cooperation Between the School Physicians and the State Institutions for Mental Defectives. D. S. Renner, Skillman.—p. 82.

Hyperplastic Ethmoiditis. D. M. O'Brian, Passaic.—p. 87.

Etiology and Treatment of Acne Vulgaris. S. J. Fanburg, Newark.—p. 91.

Treatment of Parotid Tumors with Roentgen Rays and Radium. B. P. Widmann, Philadelphia.—p. 95.

Asphyxia Neonatorum. A. Heyman, Newark.—p. 98.

New York State Journal of Medicine, New York

34: 129-174 (Feb. 15) 1934

Diagnosis and Management of Carcinoma of Colon and Rectum. F. H. Lahey, Boston.—p. 129.

Some Practical Considerations in Proctology. F. C. Yeomans, New York.—p. 138.

Tuberculous Pulmonary Cavities. E. Mayer, Saranac Lake.—p. 143.

Soft Tissue Radiography. J. R. Carty, New York.—p. 144.

Relation of Upper Respiratory Infection to Nutrition in Infants and Children. M. C. Pease, New York.—p. 146.

Acute Appendicitis. D. M. Vickers, Cambridge.—p. 150.

Exploitation of Vitamin A. S. W. Clausen, Rochester.—p. 154.

Northwest Medicine, Seattle

33: 37-72 (Feb.) 1934

Lesions of Oral Cavity: Practical Points in Diagnosis. J. A. Pettit, Portland, Ore.—p. 37.

Amebic Dysentery. G. W. Millett, Portland, Ore.—p. 40.

Endamebiasis in Seattle. K. Winslow, Seattle, and W. E. Gibb, Bellingham, Wash.—p. 45.

New Apparatus for Stool Collection. G. R. Marshall, Seattle.—p. 49.

Rupture of Thoracic Duct. J. F. Scott, Yakima, Wash.—p. 50.

Lecithin Egg Yolk Emulsion: A Substitute for the Fat Meal in Gallbladder Study. D. L. Palmer, Portland, Ore.—p. 51.

Bronchial Asthma. E. A. Montague, Livermore, Calif.—p. 51.

Schilling Differential Count: Aid in Diagnosis of Tuberculosis. F. I. Terrill, Deer Lodge, Mont.—p. 53.

Tuberculosis Among School Children. H. E. Kleinschmidt, New York.—p. 56.

Paravertebral Extrapleural Thoracoplasty: Indications and Contraindications. J. M. Nelson, Spokane, Wash.—p. 58.

Oklahoma State Medical Assn. Journal, Muskogee

27: 37-72 (Feb.) 1934

*New Method of Protein Fever Treatment in Resistant Syphilis. M. O. Nelson, Tulsa.—p. 37.

Incidence of Syphilis. J. F. Campbell, Muskogee.—p. 41.

Ocular Syphilis. W. A. Huber, Tulsa.—p. 42.

Prognosis of Syphilis. C. P. Bondurant, Oklahoma City.—p. 45.

Clinical Allergy: Some Factors Governing Diagnostic and Therapeutic Procedures. H. J. Rinkel, Kansas City, Mo.—p. 49.

Case Reports Illustrating Seven Manifestations of Allergy in Children. R. M. Balyeat, Oklahoma City.—p. 56.

Protein Fever Treatment in Resistant Syphilis.—As Nelson reported previously, the technic consists in giving two intravenous injections of combined typhoid vaccine for each fever paroxysm, instead of one. The injections are made from two to three hours apart, and the second dose is given at the height of the fever induced by the first. The doses used are smaller than those that must be given ordinarily. By observing reactions the dosage necessary to produce the desired degree of fever in any case can be estimated accurately. In order to arrive at an idea of the patient's reactivity, for the first few days treatment is given by the single injection method, beginning with a dose of about 50 or 100 million dead typhoid bacilli and doubling the dose each day, depending on the severity of the reaction induced. After a few days of trial in this way the double injections are started, beginning doses of about one-tenth as large as the last single dose being used. The first dose each day should be just large enough to produce a fever of about 99 or 100 F. The second dose should be about the same size as the first, but, if by experience it is found necessary to make it larger, it should be correspondingly increased. This second dose has a peculiar "explosive" effect—it seems to ignite a charge created in the body by the first dose, causing the patient's temperature to mount to 107 F. or more. As with usual methods, it is necessary to increase the amount of the dosage each day, because of the immunity to the vaccine that develops in the body. The author emphasizes the fact that the method is convenient and readily available and can be put to general use early in the course of resistant syphilis, while it is still possible to prevent organic damage to the body from taking place. It has brought about improvement equal to that observed in similar cases treated by malaria.

Southwestern Medicine, Phoenix, Ariz.

18: 43-76 (Feb.) 1934

Methods of Allergic Study. C. S. Kibler, Tucson, Ariz.—p. 43.

Some Hay Fever Problems in the Southwest. R. A. Wilson, Tucson, Ariz.—p. 46.

Reactions in Blood Transfusions. J. B. Littlefield, Tucson, Ariz.—p. 52.

Physiology and Pathology of Thyroid. J. W. Huffman, Tucson, Ariz.—p. 57.

Surgery in Tuberculosis of the Thyroid. M. B. Tinker, Ithaca, N. Y.—p. 62.

The Common Cold. C. H. Gellenthien, Valmora, N. M.—p. 63.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Disease in Childhood, London

9: 1-64 (Feb.) 1934

Late Infantile Amaurotic Idiocy, with Pathologic Report: Case. B. Schlesinger, J. G. Greenfield and R. O. Stern.—p. 1.
Investigations on Glycogen Disease. S. Van Creveld.—p. 9.
*Patent Interventricular Septum (Maladie de Roger). D. C. Muir and J. W. Brown.—p. 27.
Familial Sex-Linked Ectodermal Dysplasia with Incomplete Forms. R. E. Clarke and R. A. McCance.—p. 39.
Arterial Pressure in Normal Serbian Children. V. Bogdanovitch.—p. 45.
Chondrodysplasia in Twins. A. V. Neale and R. H. Hucknall.—p. 51.
Duodenal Ulcers in the New-Born. W. S. Craig.—p. 57.

Patent Interventricular Septum.—Of 100 cases of congenital heart disease in elementary school children, Muir and Brown observed forty to have a patent interventricular septum as their sole abnormality. A harsh, prolonged, mesocardial systolic murmur of maximal intensity in the third and fourth left interspaces close to the left sternal margin was the principal physical sign. The first intimation of the presence of a cardiac lesion was at the routine school entrance examination in twenty-eight cases. Of the remainder, in only one case was the lesion recognized at birth. In eleven cases the abnormality was discovered during some illness (influenza, measles or pneumonia). The authors' study of these patients seems to indicate that this condition is commoner than is generally recognized. A proper appreciation of the physical signs as described by Roger would lead to the more frequent identification of this defect. In the present series there was no case of heart block or of infective endocarditis. They suggest that a lesion of the interventricular septum alone is not the whole cause of congenital heart block. Permanent cyanosis is not a part of the clinical picture of the malady of Roger. When cyanosis is permanently present it is due to some accompanying structural abnormality. There is no characteristic roentgenologic picture of this defect.

British Medical Journal, London

1: 225-268 (Feb. 10) 1934

Spontaneous Hypoglycemia Associated with Hepatitis. H. Moore, W. R. O'Farrell and M. F. Headon.—p. 225.
Ultimate History of a Previously Reported Case of Acute Spontaneous Hypoglycemia. H. Moore, W. R. O'Farrell, M. A. Moriarty and W. Cremin.—p. 227.
Ovarian Pregnancy: Case. W. C. Spackman.—p. 229.
*Diabetes Mellitus in Association with Degeneration of Suprarenal Glands. R. W. Brookfield and H. V. Corbett.—p. 231.
*Reduction of Fractures of Surgical Neck of the Humerus. H. M. Anderson.—p. 232.
Carcinoma of Esophagus: Method of Treatment by Means of Radon Seeds. T. B. Johson and G. H. Steele.—p. 233.
Von Recklinghausen's Disease: Case. W. Marshall; psychologic note by A. W. Watt.—p. 234.
Hypodermolithiasis. J. P. Ross.—p. 235.

1: 269-318 (Feb. 17) 1934

Hunterian Oration. C. Wallace.—p. 269.
Influenza: Its Sequelae and Treatment. J. Torrens.—p. 274.
Epidemiology of Scarlet Fever in a Landward Area. J. Riddell.—p. 276.
Etiology of Heart Disease. C. B. Perry.—p. 278.
Bacillus Pyocyaneus Meningitis with Recovery. J. F. D. Shrewsbury.—p. 280.
Further Investigation on Excretory Tubercle Bacilluria. J. Menton.—p. 281.

1: 319-364 (Feb. 24) 1934

Proprietary Remedies, with Especial Reference to Hypnotics. N. Mutch.—p. 319.
Basal Anesthetics and Allied Substances: Their Use and Misuse. H. W. Featherstone.—p. 322.
A Warning Regarding Basal Narcotics. R. J. M. Love.—p. 327.
Hereditary Scoliosis. H. G. Garland.—p. 328.
Orthoptic Treatment of Squint. M. L. Hine.—p. 329.
Epidemic Jaundice in North Leicestershire. T. M. Montford.—p. 330.

Diabetes Mellitus Associated with Degeneration of Suprarenals.—Brookfield and Corbett state that the association of diabetes mellitus with gross pathologic changes in the suprarenals is uncommon. The case of diabetes that they report is of interest because of its unusually high blood sugar values and the enormous doses of insulin required during the course of treatment. There seems to be no explanation for the exceptionally high blood sugar level (1,040 mg. per hundred cubic centimeters) before treatment was instituted. Still higher values, amounting to 1,400 and 1,490 mg. per hundred cubic centimeters, respectively, have been reported by Joslin in two fatal cases. The massive doses of insulin required to bring the blood sugar back to the normal level are almost certainly related to the high initial blood sugar value. In the first twenty-four hours of treatment 460 units of insulin was given, for the next three days 240 units daily, and thereafter approximately 160 units daily. On one day, when the dose was reduced to 120 units, the blood sugar again rose to 296 mg. per hundred cubic centimeters, indicating that the doses previously given were not unnecessarily large. As there was no rise of temperature until the third day after admission to the hospital, by which time the blood sugar had been reduced to 200 mg. per hundred cubic centimeters, neither the high blood sugar nor the necessity for the large doses of insulin can be ascribed with certainty to the presence of infection. At necropsy an advanced degenerative lesion of the suprarenals was discovered.

Reduction of Fractures of Neck of Humerus.—Anderson describes a method for the reduction of fractures of the surgical neck of the humerus in which the ordinary methods of reduction have proved unsuccessful, which consists of partial transfixion of the head of the bone by a bone awl passed through a stab incision on the outer aspect of the shoulder. The procedure is carried out under the screen in the roentgen department. It consists of traction of the limb in the adducted position in order to pull the lower fragment down to the level of the upper, and, while maintaining this pull, adducting the arm across the chest. The abducted or upper fragment is now adducted by depressing the handle of the bone awl. It is then easy to engage the upper end of the lower fragment in the fractured surface of the upper. The arm is slowly brought back to a slightly abducted position, where it is maintained by splints. Once accurate approximation of the two surfaces is obtained there is little tendency for the fragments to slip.

East African Medical Journal, Nairobi

10: 317-348 (Feb.) 1934

Diet as the Cause and Prevention of Dental Caries. W. Hops.—p. 318.
Heredity and Disease: Story of Abbé Gillet's Rabbits. J. H. Sequeira.—p. 331.
Investigation of Etiology of Subacute Nephritis as Seen Among the Children of North Kavirondo. J. C. Carothers.—p. 335.

Glasgow Medical Journal

3: 41-88 (Feb.) 1934

*Certain Aspects of Metabolic Response to Injury. D. P. Cuthbertson.—p. 41.

Metabolic Response to Injury.—Cuthbertson describes the series of metabolic changes that take place on receipt of a wound in two successive phases—the initial phase of depressed vitality or shock and the phase of renewed functional activity and healing. During the phase of depressed vitality that generally results from physical injuries there occurs within the first twenty-four hours a period of relative or absolute anuria of varying duration. Following this early period of diminished urinary secretion the volume of urine and the output of nitrogen rise, reaching in the latter a maximal daily loss during the fourth to the eighth days which may even exceed 23 Gm. The maximal secretion of urine generally occurs two days after the maximal output of nitrogen. The reduction in the nitrogen content of the organism may exceed 7 per cent in the first ten to twelve days following a serious injury. The excretion of sulphur and phosphorus rises parallel to that of nitrogen. There is still a slight but continuous loss even after the lapse of one or two months. The sulphur : nitrogen and phosphoric oxide : nitrogen ratios suggest that the material catabolized was probably mainly muscle. During the initial period of depressed function the patient's heat production and body temperature are diminished, but during the subsequent phase of enhanced vitality there is an increase in heat production and body temperature. With but few exceptions does the rise in temperature exceed 2 degrees C. (3.6 degrees F.). The increase in the basal consumption of oxygen is generally from 20 to 25 per cent. Coincident generally with the rise in temperature is a rise in the pulse rate, the rate of increment being ten beats to each degree Fahrenheit. The curves of the urinary excretion of nitrogen and the basal consumption of oxygen are generally parallel. There appears to be some relationship between the

extent of the injury and the degree of reaction, but there is great variation in individual cases. Observations on the metabolic disturbance in pneumonia indicates that the changes are somewhat similar in kind to those which result from trauma, but less marked. It has been shown that atrophy due to nonuse of the injured limbs is only a minor factor in the production of this great disturbance of metabolism, which is almost certainly of a more general rather than local nature.

Guy's Hospital Reports, London

84: 1-126 (Jan.) 1934

Three Eighteenth Century Guy's Physicians: William Saunders, Thomas Skeete and John Relph. W. Hale-White.—p. 3.
Hypochromic Anemia in Men. G. N. Burger and L. J. Witts.—p. 14.
Addison's (Pernicious) Anemia and Graves's Disease. E. Meulengracht and S. J. Hartfall.—p. 25.
*Toxic (Neoarsphenamine) Aplastic Anemia: Case: Death from Pneumonia When Recovering After Fifty-Two Blood Transfusions. F. A. Knott.—p. 32.
Familial Acholuric Jaundice: Family with Four Members Affected. H. Barber.—p. 37.
Sudden Death Due to a Fibrinous Polyp of Aortic Valve. M. Campbell and W. R. Carling.—p. 41.
Recurrent Hernia of Stomach Through the Hiatus Esophageus of the Diaphragm. A. F. Hurst.—p. 43.
Diaphragmatic Hernia with Symptoms Following Development of an Ovarian Cyst: Case. B. McArdle.—p. 51.

Death in Aplastic Anemia After Fifty-Two Blood Transfusions.—Knott gives the results of treatment by repeated blood transfusions (fifty-two) of a patient suffering from aplastic anemia following prolonged administration of arsenicals. The results indicate that by this means not only may the patient's blood be sufficiently improved to allow him to resume a fully active life but also the functional activity of the blood-forming tissues may steadily improve, so that less frequent transfusions become necessary. The records clearly illustrate the low resistance to infection that these patients possess as long as leukopenia is present and their inability to produce a satisfactory protective leukocytosis. In spite of the general physical improvement, the risk of infection is a constant menace to them. From the observations made in this case it would seem justifiable to hope that, if infection can be avoided, maintenance of the hemoglobin and red cell figures at a high level by means of repeated blood transfusions may ultimately result in full restoration of the activity of the blood-forming tissue.

Irish Journal of Medical Science, Dublin

No. 97: 1-48 (Jan.) 1934

Recent Advances in Medicine and Therapeutics. L. Abrahamson.—p. 1.
*Differentiation of Bacillus Diphtheriae. G. C. Dockeray.—p. 12.
Lunacy Certification in Ireland. P. J. Cassin.—p. 22.
Malignant Stricure of the Bullet. R. Woods.—p. 28.
Evipan in Rhinolaryngology. P. J. Keogh.—p. 32.

No. 98: 49-96 (Feb.) 1934

Primary Carcinoma of the Lung. C. Bowesman.—p. 49.
Spontaneous Hypoglycemia Associated with Hepatitis. H. Moore, W. R. O'Farrell and M. F. Headon.—p. 72.
Ultimate History of Case of Acute Spontaneous Hypoglycemia Previously Reported. H. Moore, W. R. O'Farrell, M. A. Moriarty and W. Cremin.—p. 77.
Tenotomy of Scalenus Anticus, a Substitute for Resection of a Cervical Rib: Report of Case. E. N. MacDermott.—p. 81.

Differentiation of Bacillus Diphtheriae.—Dockeray offers a modification of the special tellurite medium described by the Leeds workers which has been found to give equally satisfactory results. Its preparation necessitates no special apparatus: filters or suction pumps. Two Erlenmeyer flasks of about 500 cc. capacity are taken and 150 cc. of 5 per cent agar is put in one. This is sterilized in the autoclave, and while still liquid is used to prepare the medium. In the other flask is 150 cc. of tryptic digest broth. To the broth from 20 to 30 cc. of sterile citrated human blood is added, followed by 120 mg. of potassium tellurite dissolved in a few cubic centimeters of sterile saline solution. The tellurite-blood-broth mixture is warmed to about 40 C. and is then poured into the melted agar, which has been allowed to cool to about 70 C. The mixture is heated in a water bath at 75 C. for ten minutes and, when cooled to from 50 to 55 C., is poured as plates. In testing thirty-five apparently healthy residents (nine adults) of an orphanage, eight carriers of typical morphologic diphtheria bacilli were observed who gave the characteristic fermentation reactions, six being virulent and two nonvirulent. The six carriers of virulent grave strains would not have been detected if the special tellurite medium had not been used. All the carriers were negative when Schick tested, and in all the tonsils and adenoids were subsequently removed. With the exception of one, they all gave negative cultures on three occasions after this treatment. The author believes that the detection of six virulent carriers out of thirty-five apparently healthy people demonstrates the usefulness of the special medium for the detection of carriers. The special medium has in some cases proved useful in the diagnosis of cases but it suffers from the disadvantage that growth on it is slow. It makes the isolation of Bacillus diphtheriae from mixed cultures an easy matter.

Journal of Hygiene, London

34: 1-144 (Feb.) 1934

Droplet Infection: Some Theoretical Considerations. Greenwood.—p. 1.
Epidemic Curve of Smallpox. W. J. Martin.—p. 10.
*Anomalous Features of the Dick Reaction. J. P. McGibbon.—p. 30.
Distribution and Sanitary Significance of Bacillus Coli, Bacillus Lactis-Aerogenes and Intermediate Types of Coliform Bacilli in Water, Soil, Feces and Ice Cream. Doris A. Bardsley.—p. 38.
An Enquiry into the Coli Anaerogenes Bacteria. J. Bamforth.—p. 69.
Methods of Measuring Skin Temperature. T. Bedford and C. G. Warner.—p.81.
Digestive Action of Leukocytes, Pus and Body Exudates. L. S. Dudgeon and L. T. Bond.—p. 99.
Precipitation Reaction: Optimal Proportions, Neutrality and Maximal Precipitation in Mixtures of Albumin and Antiserum. G. L. Taylor, G. S. Adair and Muriel E. Adair.—p. 118.
Weight, Height and Nutrition: Observations from the Isle of Ely. T. C. Lonie.—p. 131.
Tuberculosis in Hebrides: Rarity of Tubercle Bacilli in the Milk of Cows: Note on Vitality of Tubercle Bacilli Preserved in Frozen Milk. G. B. McCallum and J. Kirkpatrick.—p. 141.

Anomalous Features of the Dick Reaction.—McGibbon observed that about one fourth of the cases in a series of 160 patients suffering from scarlet fever appeared to be Dick negative in the acute stage of the disease. Throughout the illness there was a progressive decrease in the number of positives and in the intensity of the reactions, till in the second week two thirds and in the fourth week nine tenths of the total cases were negative. Almost 90 per cent of the original positives showed this characteristic loss of the Dick-positive state. It would appear that this change occurs less readily in young children. Fluctuations in the reaction during the course of the illness are uncommon if indeed they occur at all. Of eleven cases that failed to show the foregoing change, two relapsed. In the other 149 cases no relapses occurred. Pseudoreactions are uncommon. The author suggests that the use of heated filtrate may be unsatisfactory and that the mechanism of these reactions requires further study. He discusses some of the anomalous features of the Dick reaction and believes that these difficulties have been exaggerated and that they do not in themselves form sufficient grounds for concluding that the test is fallacious. On the evidence at present available, one must continue to regard scarlet fever as a specific toxemia. The allergic conception of the disease is less convincing.

Journal of Laryngology and Otology, Edinburgh

49: 73-152 (Feb.) 1934

Diathermy in Ear, Nose and Throat: Notes. F. H. B. Norrie.—p. 73.
Erysipelas and Hemolytic Streptococcus in Relation to Otolaryngology. D. McKenzie.—p. 105.

Journal of Tropical Medicine and Hygiene, London

37: 49-64 (Feb. 15) 1934

Locust Oil as a Therapeutic Agency. F. G. Cawston.—p. 49.
Possibility of Preventing Transmission of Malaria by Blood Transfusion: Experimental Study of Bactericidity of Conserved Blood with Respect to Plasmodium Malariae. V. Ackerman and A. Filatov.—p. 49.

Medical Journal of Australia, Sydney

1: 147-174 (Feb. 3) 1934

1803-1876: The Passing of the Tasmanian Race. W. E. L. H. Crowther.—p. 147.
Primary Papilloma of Ureter Complicated by Pyonephrosis of the Same Kidney. R. Bridge and K. Kirkland.—p. 160.
Exhaustion Neurosis. S. J. Minogue.—p. 162.

1: 175-210 (Feb. 10) 1934

Surgical Treatment of Empyema. R. B. Wade.—p. 175.
Treatment of Empyema. H. S. Stacy.—p. 178.
Observations on Nature, Rate of Growth and Operability of Intracranial Tumors Derived from One Hundred and Thirty-Five Patients. L. R. Cox.—p. 182.

Paris Médical

1: 185-216 (March 3) 1934

Syphilis During the Year 1934. G. Milian and L. Brodier.—p. 185.
Enuresis: Its Etiology. M. Pinard.—p. 195.
Pyretotherapy of Syphilis. C. Richet Jr., and J. Dublineau.—p. 197.
*Abortive Treatment of Gonorrhea. J. Janet.—p. 205.
Intellectual Level of Prostitutes. R. Rabut.—p. 207.
*Anatomoclinical Study of Some Types of Muscular Syphilis: Early Contractions and Late Retractions. Favre, Noel and P. Michel.—p. 210.
Syphilitic Bronchitis: Trial Treatment; Cure. E. Lortat-Jacob.—p. 214.

Abortive Treatment of Gonorrhea.—For each treatment Janet prepares a fresh solution of 1 Gm. of mild silver protein (argyrol) in 5 cc. of cold distilled water, which is completed in fifteen minutes. With a sterilized urethral syringe, from 2 to 5 cc. of the solution is slowly injected into the urethra. The solution is kept in the urethra for five minutes and the patient should not urinate for a number of hours after treatment. The patient should drink very little during meals but may drink in the evening after having urinated and early in the morning after having been at stool. Six injections of the 20 per cent solution of mild silver protein are given to the patient at the rate of two a day. In successfully treated cases no gonococci are observed in the morning secretion by the second day. If any are found, the abortive treatment has no value. After three days of treatment the patient is allowed to rest for forty-eight hours and then another injection is given. Before pronouncing the patient cured it is advisable to give him three glasses of beer before retiring. If after two days there is no discharge of gonococci the patient may be pronounced cured.

Muscular Syphilis.—Favre and his associates studied two patients affected by syphilis resulting in multiple muscular manifestations and an identical clinical syndrome. The lower extremities became fixed in a malposition as a result of changes in the soft parts, no other explanation being possible. In the first case neither clinical examination nor an incomplete necropsy revealed any lesions of the nervous system. In the other case the necropsy revealed distinct muscular lesions which on histologic study were found to be of syphilitic origin. The author points out as histologic evidence of myositis the extensive muscular involvement, the generalization of vascular lesions and the development of adipose tissue. These lesions have all the characteristics which the author has often observed in syphilitic interstitial myositis. Syphilis is capable of creating complex interstitial alterations in the muscles, which end in the disappearance of the contractile element and in the production of substitutive scleroses, which, in these cases as in others, cause retraction.

Presse Médicale, Paris

42: 393-408 (March 10) 1934

Variations of Cholesterolemia in Acute Infections. V. de Lavergne and P. Kissel.—p. 393.
*Gold Salts in Oily Suspension in Treatment of Pulmonary Tuberculosis. H. Mollard.—p. 395.

Gold Salts in Treatment of Pulmonary Tuberculosis.—Mollard states that results obtained with gold salts in oily suspension are more durable than those obtained with gold salts in aqueous solution. In twenty-three out of a hundred cases he obtained satisfactory immediate results, practical clinical cures with roentgenologic disappearance of lesions, suppression of bacilli and secretory symptoms and general improvement of the patients' condition. Late results of treatment with suspension of gold salts in oil showed that eight out of ten evinced an improvement at the end of two years and the author believes that this kind of treatment gives better assurance against recurrences. The most lasting ameliorations have been shown by patients suffering from syphilis, psoriasis or tuberculosis. In patients in whom the immediate action of the gold salts is not striking, the number of late improvements is larger than in patients treated by aqueous solutions of gold salts. Twelve out of thirty-eight tuberculous patients showed remarkable late improvements. The oil suspension is slowly eliminated; it thus permits continued improvement after a partial success at the end of treatment or if the early results have not been encouraging. The only inconvenience of the oil suspension treatment is the necessity of long intervals between the series. The patient is exposed to sensitization symptoms if treatment is begun too suddenly, but the accidents of late solubility do not seem to exist when there are sufficient intervals between treatments. None of the author's patients have presented any serious symptoms.

Revue Belge des Sciences Médicales, Louvain

6: 1-96 (Jan.) 1934

*Experimental Study of Action of 3-5 Diiodotyrosine in Treatment of Hyperthyroidism. E. Delcourt-Bernard.—p. 1.
Cultures in Vitro of Spirochaeta Pallida in Symbiosis with Testicular Tissue of Rabbit. A. Bessemans and B. de Geest.—p. 28.
Exanthematic Fevers Attributed to Rickettsia Group. A. van Meirhaeghe.—p. 37.
Syphilitic Aortitis and Its Treatment. D. Routier.—p. 69.

Action of 3-5 Diiodotyrosine on Hyperthyroidism.—Delcourt-Bernard found that from the physiopathologic point of view diiodotyrosine exerts a beneficial effect on the increased respiratory exchange in the course of hyperthyroidism, whatever the clinical form of the disease may be. Of twelve cases observed by the author, eight presented a lowering and four an elevation of metabolism. The mechanism of the action of compound solution of iodine differs from that of 3-5 diiodotyrosine in that, when the former lowers the metabolism, it seems to act more on aeration than on the consumption of oxygen. When it determines an elevation of the rate of exchange it acts more on the consumption of oxygen than on aeration. Diiodotyrosine, on the other hand, has more of a tendency to lower the consumption of oxygen when it lowers the exchange and to act equally on the two factors when it raises the metabolism. The most important and most frequent increases in the weight of the subjects treated are to the credit of compound solution of iodine. No differences were observed in the action of these two substances on the pulse or on other symptoms of hyperthyroidism. Except for the equivalence of doses, the author does not grant to diiodotyrosine the peculiar value that certain German authors have attributed to it and cannot compare it, as many Americans do, to a solution of inorganic iodine acting only on account of the iodine that it contains. From the therapeutic point of view, diiodotyrosine is easily absorbed and well tolerated in the prescribed doses of 0.1, 0.2 and 0.3 Gm. daily. Without possessing the efficacy or the ease of administration of compound solution of iodine, diiodotyrosine may nevertheless be of service in replacing compound solution of iodine or in obtaining a gastric tolerance momentarily diminished with regard to the latter or in being associated with compound solution of iodine after having acted previously by itself. The fact that in certain cases it may determine an elevation of the respiratory exchange with acceleration of the pulse demands a close supervision of cases treated with it.

Beiträge zur klinischen Chirurgie, Berlin

150: 223-334 (March 14) 1934

Operative Treatment of Habitual Dislocation of Patella. R. Sommer.—p. 223.
*Treatment of Seminoma. P. Blümel.—p. 227.
Spinal Anesthesia with Nupercaine. H. Krashe.—p. 243.
Method of Roentgen Irradiation of Cancer Controlled by Blood Picture. O. Kingreen.—p. 262.
Diagnosis and Treatment of Intrathoracic Tumors of Neurogenous Origin. M. Makkas.—p. 276.
Free Perforation of Postoperative Jejunal Ulcer and Its Treatment. G. E. Konjetzny.—p. 297.
Artificial Nutrition. E. Bass.—p. 302.
Traumatic Diseases of Vertebrae. P. Rostock.—p. 313.

Treatment of Seminoma.—Blümel states that tumors of the testicle are extremely rare. Of 40,000 admissions of male patients to the surgical clinic of the University of Göttingen in twenty years, only 32 presented tumors of the testicle. Seminoma is the most frequent of the testicular tumors. More than two thirds of the thirty-two mentioned belonged to this type. Of twenty-two patients, nine came to the clinic in the state of metastases. Testicular tumors metastasize usually by way of lymphatics to iliac lymph nodes and later to those about the abdominal aorta but seldom involve the inguinal nodes. About the same time metastases can be found in the mediastinum along the thoracic duct. In advanced stages metastases are present in the supraclavicular and axillary fossae. Metastases penetrate the blood vessels relatively early and give rise to liver and lung metastases, more rarely to skin metastases. According to Zondek, the urine of patients with testicular tumors frequently contains an increased amount

of prolan A, and in some of prolan B as well. It is not of a specific diagnostic value, since it may be present in other testicular diseases, as well as in certain tumors of the brain and the hypophysis. The finding of increased excretion of prolan A is suggestive but not diagnostic of a seminoma; the presence of prolan B is suggestive of the presence of a seminoma or a teratoma. In the author's three cases the metastases were effective in maintaining the increased excretion in the urine of prolan B after the removal of the primary tumor. The primary tumor because of easy approach is always to be removed. The removal of the regional lymph nodes is not advised because of the high mortality attending it. It is, however, important to irradiate the iliac and aortic lymph nodes on the side of the primary tumor even when clinically demonstrable metastases are not present. The irradiation should be repeated if the urine shows an increased excretion of prolan. The author warns against relying too much on the particular roentgen sensitivity of seminoma cells commented on by many authors, as this may lead to insufficient dosage and recurrence. From 10 to 15 roentgens a minute is considered the proper dose by the author. Because of more general reactions, fractional doses are advised for extensive metastases.

Deutsche medizinische Wochenschrift, Leipzig

60: 309-344 (March 2) 1934. Partial Index

*Occurrence of Tubercle Bacilli in Circulating Blood. W. Kolle and E. Küster.—p. 309.
*Clinical Aspects and Pathogenesis of Subarachnoid Hemorrhages. Krohn. —p. 314.
Gold Therapy of Infectious Arthritis and of Lingering Infections. F. Umber and A. Rüther.—p. 317.
Speech Without Larynx. H. Gutzmann.—p. 319.
*Mechanism of Resorption of Percutaneously Administered Esters of Salicylic Acid. H. Gehlen and A. Blankenstein.—p. 320.

Tubercle Bacilli in Circulating Blood.—Kolle and Küster show that many leading investigators have failed to corroborate Loewenstein's assertion that tubercle bacilli occur in the circulating blood of from 30 to 40 per cent of patients with various forms of tuberculosis, including lupus. The assertions that in a high percentage of cases of schizophrenia, chorea, multiple sclerosis and rheumatic diseases the blood contains tubercle bacilli and that these have an etiologic relation to the diseases have likewise not been corroborated. At any rate, of the many investigators who duplicated Loewenstein's test, none obtained the high percentages reported by him. Particularly in cases of rheumatic polyarthritis the demonstration of tubercle bacilli has been successful in so few cases that at the most it could be considered accidental. The same can be said about schizophrenia and multiple sclerosis. Loewenstein's objection that the technic and the culture mediums have not been perfect and that this explains the negative results of other bacteriologists is untenable in view of the fact that some of those who employed this method studied it in his own laboratory. The author deplores the confusion that has been brought into medical circles by Loewenstein's reports. He points out that it was known long before Loewenstein that tubercle bacilli occur in the blood (which, however, is not a multiplying but only a transporting medium) and that they are demonstrable by the culture method or the animal experiment, for tuberculosis, even if localized in a tissue, is not a purely local disorder. On the other hand, the assertion that tuberculosis begins with a bacteremia, that is, with a primary multiplication of tubercle bacilli in the blood stream, is unfounded.

Subarachnoid Hemorrhages.—Krohn reports two cases of subarachnoid hemorrhages resulting from aneurysmal cerebral vessels. The symptomatology was characterized by manifestations of central and sympathetic regulatory disturbances. One case simulated an infectious disease (typhoid). As the cause of the formation of the aneurysm, the author assumes a weakness of the vascular wall, which in turn is due to embryonal malformations of the arteries at the base of the brain. The rupture was probably caused by fluctuations in the blood pressure. The simultaneous existence of a coronary infarct in one of the cases makes it appear probable that a generalized vascular disorder, perhaps of a functional nature, may exist in cases of subarachnoid hemorrhage. The author's observations are a warning that a therapeutic spinal (lumbar) puncture should be strictly limited to the cases in which it seems absolutely necessary, for instance, if a considerable central increase in the blood pressure exists.

Salicylic Acid Administered Percutaneously.—Gehlen and Blankenstein demonstrate that the action of percutaneously administered salicylic acid preparations is limited to from two and a half to three hours, which time is equivalent to the duration of the skin-tissue passage of the preparations, and it also corresponds to the results of the biologic investigations by Brandt, who showed in stained skin sections that the same time was required for an accumulation of the salicylic acid in the canal system of the corium and of the epidermis. After that the salicylic acid was absorbed by the dilated blood capillaries and was eliminated by way of the kidneys. Moreover, the time corresponds to the period of alleviation of pain reported by the patients with various rheumatic disorders. Therefore, in order to obtain permanent results, the percutaneous application of salicylic acid preparations must be repeated at intervals of from two to three hours, for in this manner an interruption of the analgesic action is prevented.

Deutsche Zeitschrift für Chirurgie, Berlin

243: 377-520 (March 10) 1934

*Thyroid and the Nervous System: Experimental Study of Etiology of Hyperthyroidism. H. Eitel.—p. 377.
*Injuries of Knee: Injuries of Lateral Ligaments and Joint Capsule. A. Jirásek.—p. 415.
Further Reports on Making a Window in Joint Capsule in Order to Prevent Postoperative Effusion in Operations on Knee Joint. F. Mandl.—p. 440.
Studies of Lesser Circulation: Method of Determination of Circulating Blood in Lungs. K. Killian, G. Schwoerer and H. Voelker.—p. 447.
Blood Calcium Content in Experimental Biliary Fistula. G. Iesu.—p. 488.
Spontaneous Internal Biliary Fistulas and Their Operative Treatment. F. Bernhard.—p. 493.
Effect of Ligation of Ureter on an Infected Kidney. S. Turii.—p. 507.
Results with Sulphurous Acid Treatment of Wounds. C. von Scanzoni and W. Kofferath.—p. 511.
Treatment of Burns with Carbonified Felt. B. Laqueur.—p. 516.

Study of Etiology of Hyperthyroidism.—Eitel attempted to investigate the relation between the thyroid and the nervous system and to determine the rôle of the latter in the genesis of hyperthyroidism. Studies by others have revealed the presence in the anterior lobe of the pituitary of a substance capable of inducing in an animal a state of hyperthyroidism. Administration of this substance induces typical anatomic alterations in the thyroid, increased basal metabolic rate, diminution of liver glycogen, diminution of iodine content of the thyroid and increase in the iodine content of the blood. The author took advantage of this thyreotropic effect in evaluation of the influence of the nervous system in the production of certain diseases of the thyroid. The following observations were made: (1) the effect of the anterior pituitary on the thyroid when the cervical sympathetics were removed, (2) the effect of the anterior pituitary on the surviving gland, and (3) the effect of the anterior pituitary on transplanted thyroid. The results obtained were as follows: 1. When the cervical sympathetics were extirpated, the thyroid exhibited on administration of large doses of the anterior pituitary the characteristic alterations of hyperthyroidism. Its reactivity to small doses was somewhat lowered. 2. The surviving thyroid reacted in the same manner to the administration of the thyreotropic substance. 3. The autoplastic and homoplastic thyroid transplants reacted in the same manner to the thyreotropic substance. Signs of hyperthyroidism were well developed in three and four week transplants. From these experiments it is apparent that the stimulus for the pathologic increase of thyroid function is to a great extent independent of the nervous system. The possibility of influencing at will the functional activity of a transplanted organ was demonstrated in these experiments. The possibility of treating athyreosis by transplantation of the thyroid is suggested.

Injuries of Knee.—According to Jirásek, injuries of the lateral ligaments and capsule of the knee joint result from a great force applied either in abduction or in adduction, or from twisting of the one joint while the other is fixed. The alterations produced by trauma consist of stretching, splitting of the fibers and tearing away from the insertion with or without a piece of bone. The joint capsule tears in an irregular

manner and the edges of the torn surface are usually compressed. Isolated lesions of the lateral ligaments are rare and, as a rule, they are associated with injuries of the joint, the crucial ligaments and the menisci. The bone, as a rule, is not involved. Among the objective signs characteristic of the condition are looseness of the joint, increased lateral passive mobility of the leg and tenderness or a palpable depression at the point of injury to the lateral ligament. The roentgenogram in early cases frequently shows particles of bone torn off with the ligamentous attachment and in older cases a paracondylitic osteoma. The prognosis in milder cases is good without operative intervention, but in extensive and complicated lesions an early operative intervention becomes necessary. Its aim is the repair of all injured parts, suture of the lateral ligaments, plication suture or a plastic procedure on the crucial ligaments and removal of a torn meniscus. The author advises a longitudinal incision curved below, careful opening of the joint and a tight closure of all layers. The average duration of disability was from two to three months. Of thirteen patients operated on, eleven had excellent results.

Klinische Wochenschrift, Berlin

13: 321-360 (March 3) 1934

Constitution and Biologic Properties of Blood Pigment and Its Derivatives. F. Haurowitz.—p. 321.
Pathologic Pigmentation of Skin and Pigment Vitamins. P. Morawitz.—p. 324.
*Influence of Anesthesia on Reflex Autoregulation of Circulation in Thyrotoxicosis. E. Neter.—p. 327.
Clinical Examination for Suitability for Sport. W. Borgard and J. Hermannsen.—p. 329.
*Agglutination of Staphylococci by Constituents of Plasma of Mammals. Luise Birch-Hirschfeld.—p. 331.
Micromethod for Titrimetric Determination of Total Cholesterol Content of Blood. F. Rappaport and R. Klapholz.—p. 333.
Clinical Experiments with Carbohydrate-Free Flour in Diabetic Patients. E. Egedy.—p. 334.
Results and Problems of Research on Porphyrin. H. T. Schreus.—p. 334.
Criticism of Erythrocytometer According to Bock. H.-E. Bock.—p. 335.
Differences in Reaction Capacity of B Factor Between Blood Group A_1 B and A_2 B. F. Hahn.—p. 336.
Further Refining of Wassermann Antigen by Means of Dialysis Through Rubber Membrane. Ö. Fischer and J. Steinert.—p. 337.
Meningococcic Sepsis and Endocarditis. R. Weindel.—p. 338.

Influence of Anesthesia on Circulation in Thyrotoxicosis.—Neter shows that rabbits with severe thyrotoxicosis, which have been anesthetized in a degree adequate for normal animals, show spontaneous and reflex movements, increased blood pressure and fluctuations in the blood pressure. There also exists a disturbance in the reflex autoregulation of the circulation, for increase of the blood pressure in case of exclusion of the pressoreceptor nerves and decrease of the blood pressure in case of their stimulation are inadequate. The author wanted to determine whether this failure of the reflex autoregulation is due to a change in the reflex arc itself or to a disturbance in the sympathetic nervous system resulting from an abnormal irritability. It was found that additional anesthesia counteracts the spontaneous and reflex movements and brings the increased blood pressure down to normal, and that the reflex autoregulation takes the normal course. This indicates that the additional anesthesia abolishes a disturbance that inhibits the reflex autoregulation of the circulation; that is, the abnormal irritability. Since human thyrotoxicosis also is accompanied by a disturbance in the reflex autoregulation of the circulation, which most likely is due to a pathologic irritability, the treatment of exophthalmic goiter with anesthetics and hypnotics gains importance for the removal of sympathetic functional disturbances.

Agglutination of Staphylococci by Blood Plasma.—The studies reported by Birch-Hirschfeld concern the following problems: (1) parallelism between the coagulation of plasma and the agglutination reaction of staphylococci, (2) the agglutinating constituents of the plasma and (3) the relationship between agglutination and coagulation activation. She found that staphylococcus strains, which coagulate citrated plasma, become agglutinated by this plasma. Thus the agglutination test presents a simple method for the differentiation of staphylococcus strains. The agglutinating action of the plasma is due to its content in prothrombin. For this reason it is absent in "pure" fibrinogen solutions or serums, but it is present in fibrinogen solutions and in serums that contain prothrombin. The reaction may be abolished by the influence of calcium chloride. Agglutination and coagulation activation are, to a certain degree, independent of each other; for instance, the agglutination may be inhibited without abolishment of the coagulation, and vice versa. The author discusses the biologic significance of the reaction. She points out that agglutination reveals clearly the affinity existing between prothrombin and parasitic cocci. This phenomenon is a manifestation of the adaptation between the parasite and the mammalian organism. It is probable that this affinity plays an essential part also in coagulation, even if agglutination as such is inhibited. Thus the process of plasma coagulation is brought into relationship to biologic processes already known.

Medizinische Klinik, Berlin

30: 289-320 (March 2) 1934

Significance of "Internal Speaking" for Normal and Abnormal Development of Speech. R. Schilling.—p. 289.
Pathogenesis and Therapy of Hay Fever (Rhinopathia Pollinosa, Asthma Pollinosum). E. Urbach.—p. 290.
Influence of Race on Pathogenesis and Course of Diseases. K. Saller.—p. 292.
Can Intravenous Short Narcosis with Evipan Sodium Be Recommended to the Practitioner? W. Spitzer.—p. 296.
Serology of Tuberculosis in Dermatology. W. Schönfeld.—p. 299.
*Aphthoid (Pospischill). L. Kumer.—p. 303.
Abortive Cures in Gonorrhea and Remarks on Irritative Action of Silver Compounds. C. Siebert.—p. 303.
Myasthenia Gravis Pseudoparalytica. K. Briegleb.—p. 305.
Culture of Tubercle Bacilli from Blood by Means of Loewenstein's Method. A. Frederiksen.—p. 306.
Antineuralgic with Sedative and Spasmolytic Action. P. Ervenich.—p. 307.

Aphthoid.—The child observed by Kumer had severe burns in the region of the buttocks and died on the fifteenth day after the accident. On the second day after the burns had been sustained, a severe toxic exanthem developed on the trunk and the extremities, and on the twelfth day the symptoms designated as aphthoid became manifest. Thick-walled vesicles on a slightly infiltrated and reddish ground appeared on the nasal openings and on the mouth. The oral mucous membrane, in other cases often involved, remained free in this instance. The literature on the etiology of the aphthoid indicates that the condition is probably caused by a virus and that a relationship exists between herpes simplex, stomatitis aphthosa and aphthoid. Animal experiments conducted by the author with aphthoid material from the patient observed by him indicate that the material contained herpes virus. He thinks that, if it should be proved that the herpes virus is actually the cause, the aphthoid would present, so to speak, the ecthyma form of the otherwise harmless herpes simplex.

30: 321-352 (March 9) 1934

Treatment of Carcinoma of Larynx and of Hypopharynx. K. Amersbach and L. Kraus.—p. 321.
Significance of Heredity for Development and Course of Tuberculosis. H. Ulrici.—p. 324.
Diagnosis of Aortosclerosis. E. Magnus-Alsleben.—p. 326.
*Bovine Tubercle Bacilli as Cause of Lupus Vulgaris and of a Simultaneously Existing Pulmonary Tuberculosis. J. Hämel.—p. 328.
*Occupational Skin Diseases of Milkers, with Especial Consideration of Granulation Nodules Caused by Penetration of Cow's Hair. H. Gottron.—p. 330.
Diphtheria and Scarlet Fever. K. Srnetz.—p. 331.
Special Form of Elicitability of Babinski's Great Toe Reflex. S. Wolff.—p. 334.
Utilization of Determination of Lipase for Diagnosis of Pancreatitis. H. L. Popper and R. Schoß.—p. 335.

Bovine Tubercle Bacilli, Lupus Vulgaris and Pulmonary Tuberculosis.—Hämel relates the history of a girl with lupus foci on the face, neck and extremities. Material from a lupus focus was injected into guinea-pigs and the animals developed a generalized tuberculosis, which proves that the tubercle bacillus was of the bovine type. Two years later the patient was again admitted to the hospital because of recurrence of lupus foci, and roentgenoscopy of the lungs revealed a bilateral, cirrhotic, pulmonary tuberculosis. Examination of the sputum by the animal test indicated that it contained bovine tubercle bacilli. The author says that in Germany about 10 per cent of the patients with lupus are infected with the bovine type of the tubercle bacillus. In patients with pulmonary tuberculosis, however, the bovine type is found much less often; namely, in only 0.5 per cent of the cases.

Skin Diseases of Milkers.—Gottron calls attention to "milkers' nodules," which were better known before the eradication of smallpox and are probably caused by a vaccine virus. From this type of nodules he differentiates telangiectatic granulomas, which are not pediculated on the fingers of milkers as they are in other persons. The absence of the pedicle may be due to the frequent compressions to which these formations are exposed on the hands of milkers. The author calls particular attention to nodular formations that are caused by the penetration of cow's hairs. These nodules vary in size between a grain of rice and a pea. They are bluish red and at the top may have a small scab or a necrotic layer. Occasionally hairs stick out from these nodules. Another disorder caused by the penetration of cow's hairs is a spindle-shaped thickening of the entire phalanx, and then there are the granulomas that develop in rhagades that have become irritated by the penetration of cow's hairs. The author describes the histologic aspects of the granulomas caused by cow's hairs, and he suggests that, in order to differentiate this type from milkers' nodules, the term milkers' granulation nodules should be applied to them. He considers surgical measures the best treatment for these nodules.

Wiener klinische Wochenschrift, Vienna

47: 289-320 (March 9) 1934

Alcaligenes Abortus Infection in Human Beings: Bacteriology, Serology, Epidemiology and Prophylaxis. V. Russ.—p. 289.
Alcaligenes Abortus Infection in Human Beings and in Animals: Present Status and Treatment in Animals. J. Schnürer.—p. 293.
*Pathogenesis of Acute Diseases of Pancreas. H. L. Popper.—p. 295.
Problem of So-Called Pleural Shock. A. Arnstein and L. Wischnowitzer.—p. 300.
*Possibility of Influencing Angiotrophoneurotic Symptoms by Short Waves. E. Weissenberg.—p. 302.
Lymphogranulomatosis. H. Kahler.—p. 304.
*Calcium-Methenamine Compound in Diseases of Upper Air Passages. K. Kofler.—p. 307.
Diagnosis and Therapy of Pulmonary Abscess and Gangrene. M. Weinberger.—p. 308.

Pathogenesis of Acute Diseases of Pancreas.—Popper shows that an inflow of pancreatic secretion into the bile passages can be observed in nearly all acute disorders of the pancreas. If there are disturbances in the discharge at the papilla, a trypsin activation takes place in the biliary passages, and it spreads from the distal, intrapancreatic portion of the choledochus to the pancreas. This tallies with the pressure of the secretion in the pancreatic duct and in the bile duct and makes it understandable why in most cases of pancreatic diseases that come up for necropsy the pancreatic duct shows no changes. It harmonizes also with the close relations between gallstone disease and pancreatic disorders, since the disturbances in the discharge are caused generally by papillary concretions or by spastic conditions at Oddi's sphincter, which in turn are the result of disorders of the gallbladder or of the bile passages. The author rejects an etiologic separation between pancreatitis and necrosis of the pancreas. He maintains that they are only different stages and different reactions of the same disease process; and the secretory phase of the pancreas, that is, the presence in the cells of larger or smaller amounts of trypsinogen at the onset of the pancreatic disorder, plays an important part in this process. Biliary peritonitis without perforation involves the same pathogenic factors as does acute pancreatitis; however, it can develop only if acute pancreatitis does not, for the two diseases exclude each other to a certain extent. The author thinks that his explanations apply to the majority of acute diseases of the pancreas but admits that a relatively small number of acute pancreatic disturbances must be ascribed to other pathogenic factors.

Short Waves in Treatment of Angiotrophoneurotic Symptoms.—In employing short waves in treating patients with angiotrophoneurotic symptoms, Weissenberg observed that, when large amounts of energy were applied, painful conditions often became acutely exacerbated, while the use of small amounts of energy often effected a noticeable and sometimes instantaneous improvement. The various wavelengths between 4 and 17 meters occasionally produced different effects, but the differences were not constant. Patients with acroparesthesia and Raynaud's disease felt considerable relief already during the treatment, while in endarteritis obliterans and in severe forms of gangrene the pains were often greater than before. The effects of the short wave treatment were particularly favorable during the cold months. In a patient with Raynaud's syndrome, short wave treatments of the hands had practically no effect but irradiation of the midbrain produced considerable improvement. The author found that diabetes mellitus is not necessarily a contraindication to short wave therapy. In endarteritis obliterans and in gangrene, only prolonged treatment with large amounts of energy was successful, and occasionally even this method failed. The short waves were successful in a large percentage of cases showing angiospastic disorders, such as migraine, angina pectoris, dysmenorrhea, asthmatic conditions and colics. The number of irradiations that were required until results could be seen varied between eight and sixty. The author concludes that short wave therapy of angiotrophoneurotic symptoms is highly promising, is without danger and gives the patient great relief.

Calcium-Methenamine Compound in Influenza.—Kofler states that in the course of the last ten years he treated influenza of the upper respiratory tract with a double compound of calcium and methenamine. When the patients applied for treatment, the influenza had generally entered the chronic stage, for most of them had tried self treatment during the acute stage. As a rule, the compound of calcium and methenamine was given internally in the form of tablets or of a solution, and it was given by injection only in cases in which it caused gastro-intestinal disorders. The daily dose as well as the total dose is determined on the basis of age, sex and general condition. Children are given about half of the amount taken by adults, and women, who apparently do not tolerate methenamine as well as men do, are given somewhat smaller daily doses than those given men. During the chronic stage, adults are given from four to six tablets daily, but in the incipient stage, when there is still a prospect of checking the process, twice as much may be given. The preparation may be used also for prophylactic purposes at the time of an influenza epidemic, when about three tablets may be given daily. The author thinks that the calcium content of the compound aids the action of the methenamine and largely prevents the complications that may be produced by the methenamine.

Zeitschrift für klinische Medizin, Berlin

126: 373-506 (March 9) 1934

*Clinical and Experimental Aspects of Salt Water Therapy of Chronic Uremia. G. von Farkas.—p. 373.
Technic of Measuring Depth of Sleep and of Testing Soporifics. H. Regelsberger.—p. 395.
*Relations of Blood Cholesterol to Carbohydrate Metabolism with Especial Consideration of Diabetes Mellitus. H. Grieshaber.—p. 405.
Occurrence of Latent Hemophilic Hereditary Factor in Clinically Not Hemophilic Sons of a Hemophilic Family: Biologic Tests on Coagulation. A. Fonio.—p. 424.
Investigations on Mechanism of Pale Hypertension: Disturbances in Metabolism of Muscle in Pale Hypertension. H. Bohn and A. Friedsam.—p. 433.
Biochemical Changes in Organism in Acute Infectious Diseases. M. Tesdal.—p. 442.
Klippel-Feil's Syndrome, Basilar Impression and Endocrine Disturbances. P. Merio and E. Rinik.—p. 455.
Increased Efficacy of Liver Following Treatment with Gastric Juice: Liver Action in Pernicious Anemia. F. Reimann and F. Fritsch.—p. 469.
Behavior of Skin Capillaries Under Influence of Carbon Dioxide Gas Baths. A. Benatt.—p. 485.
Oxygen Saturation of Arterial Blood in Polycythemia. K. Hitzenberger.—p. 495.
Case of Cerebral Emaciation. F. Bodart.—p. 499.

Salt Water Therapy of Chronic Uremia.—Von Farkas says that for this treatment to be successful in chronic uremic renal diseases the kidneys must still be capable of a daily diuresis of 2,000 cc.; a certain functional capacity of the heart is likewise required. The salt water therapy is particularly promising in cases in which the heart has not been impaired by a prolonged hypertension. Since it is of vital importance that the quantity of urine be kept high for a large part of the day, it is not sufficient to let the patient merely take large amounts of water; either the water intake should be well distributed (about 50 cc. every half hour) or care should be taken that the water is slowly eliminated by the addition of small amounts of sodium chloride. Ringer's solution or physiologic solution of sodium chloride is suitable for the latter purpose. Soups

having the usual salty taste likewise contain approximately 0.5 to 1 per cent of sodium chloride. In cases of uremia in which the sodium chloride content of the blood is abnormally high it is advisable to give pure water; if the sodium chloride content is normal or reduced, salt solutions are advisable. Occasionally the administration of the salt solutions may result in edema, but this does not necessitate an interruption of the treatment, for if ordinary water is given in such cases an excessive diuresis is generally the result and it is often accompanied by the elimination of large amounts of nitrogen. It was also observed that the patients frequently feel better when, by the administration of large amounts of water, edemas are produced and the retained nitrogen substances are thinned out. The salt water therapy does not make superfluous the other therapeutic measures that have proved valuable in uremic conditions. Sugar infusions, calcium injections, venesection, intestinal irrigations and limitation of the nitrogen intake are by no means to be abandoned. The sodium chloride content should be kept under constant control in the course of the treatment. The author illustrates the favorable effects of his treatment with a number of case histories.

Blood Cholesterol in Diabetes Mellitus.—Grieshaber found that there exists a hypercholesterolemia in progressive cases of diabetes mellitus showing severe metabolic disturbances. With the improvement of the metabolic condition the hypercholesterolemia improves, particularly under the influence of insulin therapy. Modification of the carbohydrate metabolism by the administration of dextrose, insulin or epinephrine causes the total cholesterol content of the blood to show fluctuations of a certain regularity, but insulin and epinephrine do not seem to influence the cholesterol content of the blood directly. In severe cases of diabetes mellitus the degree of hypercholesterolemia seems to furnish a suitable indicator for the metabolic disturbance and for the efficacy of the insulin therapy, but in mild cases the cholesterol content of the blood does not permit conclusions.

Zentralblatt für Chirurgie, Leipzig

61: 481-544 (March 3) 1934

Wire Extension at Elbow for Fractures of the Arm. H. Boeminghaus. —p. 482.
*Gastrojejunocolic Fistula After Stomach Resection. E. Koch and Belozerkovsky.—p. 486.
*Results of Splenectomy. H. Tammann and K. Deutelmoser.—p. 492.
Treatment of Mediastinal Flutter After Thoracoplasty. E. Domanig. —p. 496.
Obliteration of Varicose Veins. H. Bock.—p. 498.
Apparatus for Reinfusion of Blood. H. Henneberg—p. 500.
New Sewing Apparatus for Stomach and Intestine. H. Friedrich. —p. 504.

Gastrojejunocolic Fistula After Stomach Resection.—The most frequent complication of the peptic jejunal ulcer according to Koch and Belozerkovsky is penetration into the neighboring viscera, most frequently the mesocolon and the transverse colon. This complication has received but little attention. Kotzoglu collected, up to 1929, 117 cases. The operation indicated for this condition is a formidable one, especially when resection of the transverse colon becomes necessary. If left to itself, however, the condition invariably is fatal. The authors report 427 resections of the stomach for ulcer, with a mortality of 6.3 per cent and a peptic jejunal ulcer in 3. Of the latter, two developed a gastrojejunocolic fistula. They conclude that even an extensive resection does not always exclude the development of a peptic jejunal ulcer. In the first case the total acidity was 62 and free hydrochloric acid 56, and in the second they were 70 and 50, respectively. The mechanical trauma to the jejunum from the use of clamps is an important factor in the genesis of the peptic jejunal ulcer. The authors, therefore, in operating apply a clamp to the stomach but not to the jejunum. The gastrocolic fistula, unless operated on, invariably is fatal.

Results of Splenectomy.—Tammann and Deutelmoser report the late results of twenty-seven splenectomies from the surgical clinic of the University of Göttingen. Attention is called to the presence of Jolly bodies in the red cells after a splenectomy in otherwise healthy persons. The erythrocyte count and the hemoglobin remained in their late cases well within the normal limits. There was no increase in the resistance of the erythrocyes to salt solution. The platelet count and the coagulation time were normal. Disregarding traumatic injuries to the spleen, in which splenectomy constitutes a vital indication, the best results, approximating a permanent cure, were obtained in hemolytic icterus and, next, in Gaucher's disease and in essential thrombopenia in which the main clinical symptoms were absent years after the splenectomy. The same can be said of splenic tumors resulting from hepatosplenic disease (Banti). The question of splenectomy for splenic tumors of leukemic origin presents itself only in exceptional cases, while its removal in pernicious anemia has been generally abandoned.

61: 609-672 (March 17) 1934

*Results with Operative Treatment of Pylorospasm in Nurslings. J. Oehler.—p. 611.
Use of Pencil as Substitute for Catheter in Urinary Retention. K. Kamniker.—p. 613.
Resection of Vas Deferens. H. F. O. Haberland.—p. 616.
Perforation of Small Intestine in Tuberculosis of Mesenteric Lymph Nodes. K. Ehbardt.—p. 618.
Abdominal Pregnancy. P. Esau.—p. 620.
Disappearance of Tumor Metastases in Uremia. I. Philipowicz.—p. 626.
Osteosynthesis of Fracture of Neck of Femur. Garcia Diaz.—p. 627.
Joint Damage Resulting from Chronic Vibration. P. Rostock.—p. 630.

Operative Treatment of Pylorospasm in Nurslings.—Oehler reports forty-two cases of pylorospasm in nurslings on whom operation was performed in the last fifteen years. The patients ranged in age from 26 days to 5 months. The average age was 2 months. Four fifths were boys and one fifth girls. There were six fatalities, a mortality of 14 per cent. Three of the patients were in a much debilitated state when operated on. Of the thirty-six surviving patients, thirty-four were followed up. The immediate result of the operation was always a prompt cessation of vomiting. The late results were excellent so far as gastric function was concerned. The general health of these children was satisfactory and there were no developmental disturbances of any kind. The author believes that the results of the operation may be further improved by attention to complete division of the entire involved circular muscular tumor and by what is even more important, the timely operation.

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39: 151-306 (Feb. 28) 1934

Changes in Eyes in Juvenile, Amaurotic Idiocy. B. Rosengren.—p. 151.
Relations of Fixation of Formaldehyde Together with Sublimate Solution and Its Stabilization for Longer Preservation. A. Ingelman-Sundberg. —p. 181.
*Unexpected and Sudden Death in Childhood in Clinical Light. S. A. Siwe.—p. 203.
Determination of Threshold of Taste with Nipacombin and Sodium Benzoate, in Order to Establish Comparatively the Fitness of These Substances as Agents for Preservation of Raw Foods. T. Arnéus. —p. 257.
Course and Certain Consequences of Changes in Volume of Forearm on Application of Pressures of Different Degrees and Durations on Upper Arm. B. O. Carlberg.—p. 261.
Investigation on Keeping Qualities of Vitamin D Obtained by Prof. A. Windaus by Ultraviolet Irradiation of Viosterol. Göta Englund. —p. 293.

Unexpected and Sudden Death in Childhood.—The material reported by Siwe comprises 212 cases of sudden death, exclusive of deaths due to accidents or injuries connected with delivery, from 1916 to 1932, in children up to 15 years of age, 143 occurring during the first four months of life. Neither sex predominated. The seasonal incidence showed about the same course as the disturbances of the respiratory organs, and the majority of positive pathologic results were established in these organs. He emphasized that such disorders do not always give local symptoms and are consequently easily overlooked. A simple cold or slight intestinal disturbance may lead to vomiting with aspiration, quickly causing death. During the first three months of life there is greater possibility of disease of the brain through most varied infections and intoxications. Even in breast-fed infants, inanition may occur and doubtlessly contribute to death. Enlargement of the thymus could not be established as the cause of death. In cases presenting such enlargement the symptoms before death and the results after death were the same as in children with a thymus of normal weight. In rare cases, however, the author says, considerable enlargement of the thymus may lead to symptoms from the respiratory passages. Thirty cases are reported.